

# THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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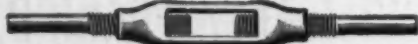
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See page 140



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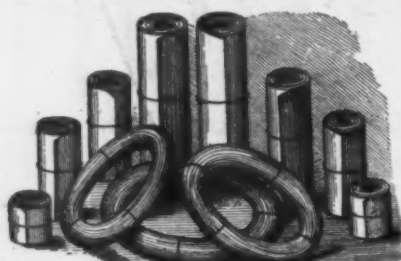
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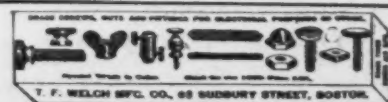
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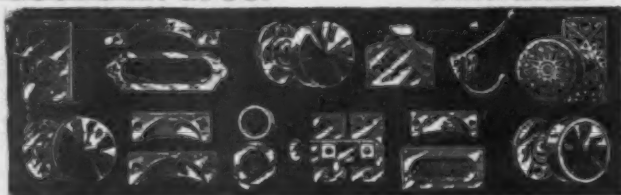
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# THE IRON AGE.

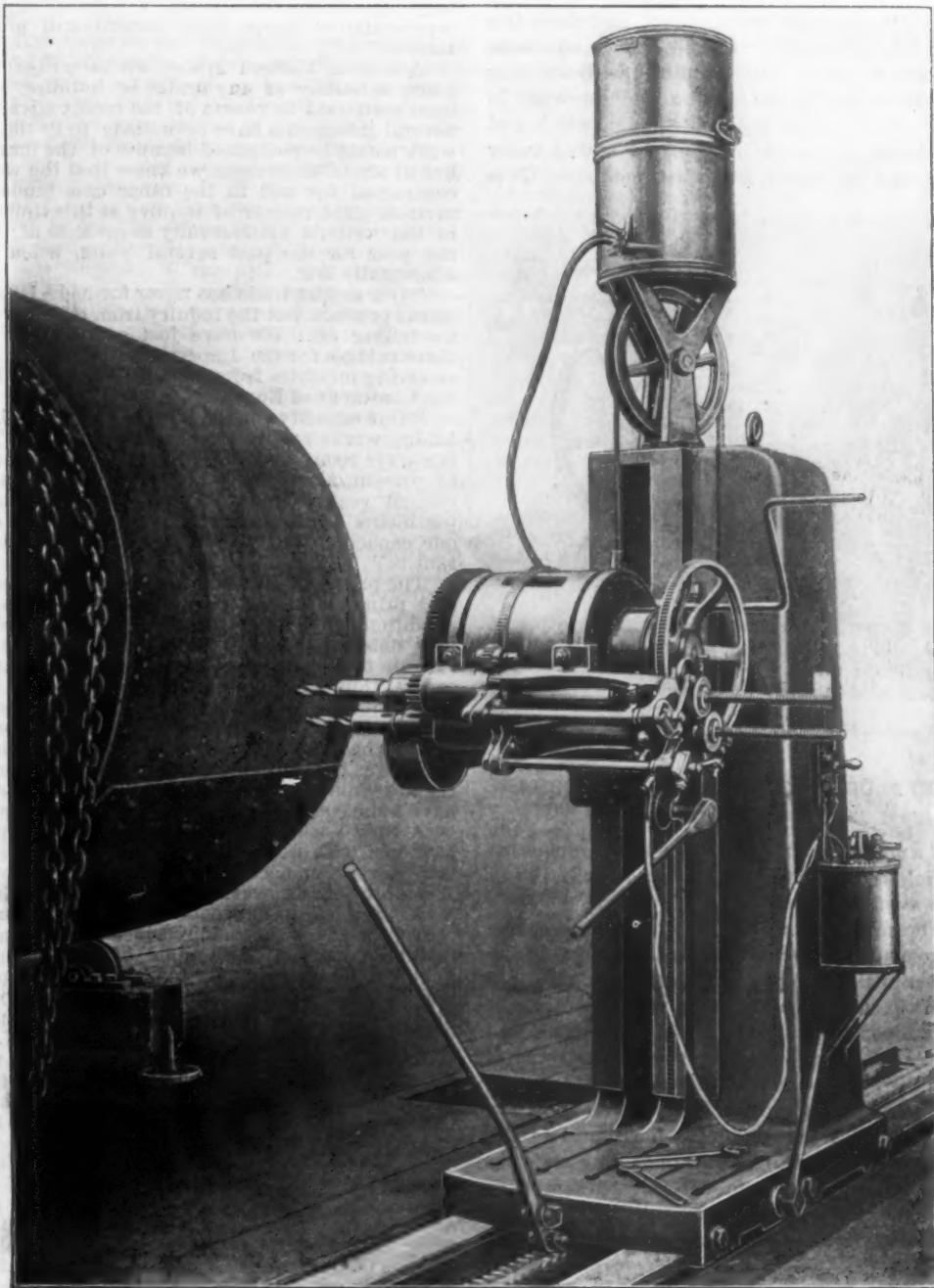
THURSDAY, JUNE 1, 1899.

## The Dallett Duplex Boiler Shell Drill.

Thomas H. Dallett & Co. of York street and Sedgley avenue, Philadelphia, are building an electrically driven duplex boiler shell drill, as here illustrated, the first en-

the bed all the holes in the longitudinal seams can be drilled.

The machine consists of a cast iron bed, made of any length desired, on which is mounted an upright, the weight of which is carried upon roller bearings, thus en-



THE DALLETT DUPLEX BOILER SHELL DRILL.

graving representing the drill at work, while the second shows the reverse side of the drill. In this type of machine, as in their former rope driven type, the boiler shell is placed horizontally upon four or six rollers in front of the tool; then, by placing the spindles horizontally at the height of the center line, or pointing up toward the center line and turning the shell, all the holes in the circular seams can be reached, and by moving the upright along

abling it, by means of a lever and ratchet arrangement, to be easily moved along the bed. The upright carries a swivel slide to which is fastened the drilling head, the whole being counterweighted so that it can be easily moved vertically upon the upright by means of a rack and pinion operated by a ratchet wrench.

The drilling head consists of the electric motor, around the circumference of which are moved and fastened the

spindle frames. The motor, being of the inclosed multipolar type, is well adapted to boiler shop use, as it is practically dust and water proof. It is furnished with roller bearings and end ball thrust bearings, so that it can be run in the vertical position and is furnished with a starting and controlling switch by which, in connection with the back gearing, the spindles can be run at ten different speeds for different sized drills. The spindle frames are held firmly to the motor by V-gibs at the ends and bolts locked in T-slots around it. They are easily moved in setting by means of a ring gear around the motor and pinions on the spindle frames by which they can be moved either singly or both together.

The spindles can be grouped in either the horizontal or the vertical plane or in any position between them, by which arrangement both spindles are always operative in drilling all the holes in the shell. Each spindle has an independent automatic feed arrangement, and there is a quick hand feed by which either spindle can be advanced separately or both together. This hand feed with a sliding sleeve socket can be used in the tapping and screwing in the stay bolts. The starting and controlling switch and rheostat is substantially made and coated with a water proof material so that it will withstand moisture. It is

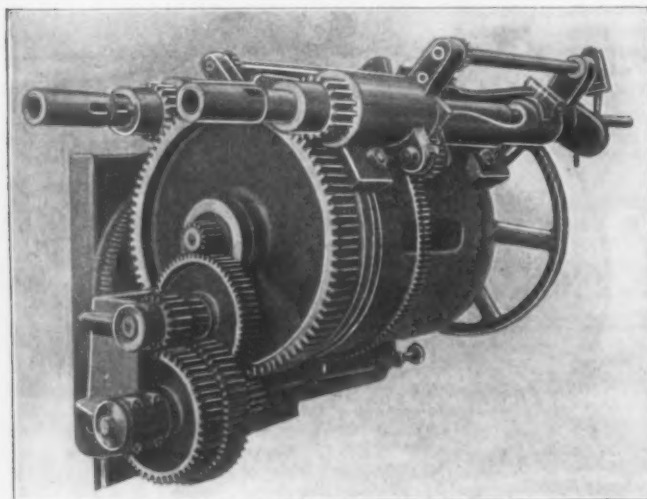


Fig. 2.—View of Driving Mechanism.

#### THE DALLETT DUPLEX BOILER SHELL DRILL

provided with a magnetic circuit breaker to guard against overloads, which is also used as a main switch, so that the current is always broken on a knife switch, thus preventing any burning of the contacts of the controller. By the arrangement of the controller a difference in ratio of speed of from one to two is obtained, and this variation is accomplished in such a manner that the full power of the motor is retained at all speeds. The controller is also furnished with a reversing switch by which the spindles of the drill can be reversed in such work as tapping.

The drilling head, being mounted on a swivel slide, can be turned from 45 degrees above the horizontal to the vertical position, and thus can be used in drilling plates in the flat. The machine has been carefully designed in view to rapid handling, so that the operator standing on one side of the upright has full control over its movements.

The principal dimensions of the machine are: Horizontal range, 20 feet; vertical range of drilling head on upright, 4½ feet, the spindles in the highest position being 7 feet above the base of the tool; the drilling head is fitted with spindles 2 inches in diameter, bored to fit a No. 4 Morse taper shank. The spindles have a traverse of 15 inches, and are furnished with an automatic feed arrangement giving from 0.004 to 0.01 inch advance per revolution; they can be run at ten different speeds between 35 and 150 revolutions per minute, and can be adjusted between from 4 to 17 inches between centers. Net weight of the machine is 9000 pounds.

#### Bridge Builders and the Prices of Materials.

In order to test, in one important line of consumption of iron and steel, the question whether and in what degree the present price of iron and steel is adversely affecting consumption, we addressed letters to a number of the leading bridge builders and construction shops touching the following points:

##### From New York and New England.

1. Whether in your experience the rise in materials has already had the effect of causing postponement of work, citing instances.

2. Whether the higher prices have had a serious effect upon the export business.

3. To what extent your capacity is now engaged, stated in percentages of your annual capacity.

The answers have been numerous and frank, and since they come from the officers of some of the largest and representative shops their perusal will prove of great interest.

A leading Eastern bridge works writes: "We do not know definitely of any bridge or building work having been postponed by reason of the recent advance in prices. Several statements have been made to us that prospective work would be postponed because of the increased prices, but in one of these cases we know that the work has been contracted for and in the other case tenders have been invited. The volume of inquiry at this time is large, and in the writer's opinion fully as great as at this season of the year for the past several years, when prices were abnormally low.

"Our export trade has never formed a large percentage of our product, but the inquiry from this source has shown no falling off. We have just completed a shipment of three bridges for the Imperial Railways of Japan and are receiving inquiries from Japan, East Indies, England and the Continent of Europe.

"Our capacity for the present year is well sold up, but bridge works are like omnibuses and Oliver Twist—there is always room for more. Running single turn, as we are at present, about 80 per cent. of our capacity for the present year is sold. A double turn in some of the departments could readily be organized and operated and our capacity largely increased should the demand warrant it."

The president of a famous company writes: "On general principles I feel certain that the present unsettled condition of the steel trade is having a bad effect upon new enterprises, and the tendency of the mills is to execute recent orders at high prices at the expense of old orders, thus causing serious inconvenience and expense to the bridge building interests. In the one case of a famous export order I feel very certain that orders for this country had to stand aside while that little piece of advertising was put through. Our producers should certainly try to regulate prices, so that bridge manufacturers could have some confidence in the future of their business."

A New York plant makes the following points: "We have met with several instances of the postponement of bridge work on account of the rise in the price of steel. A month or six weeks ago the city of North Adams, Mass., decided to postpone the construction of a street bridge for which they had received bids, hoping for a more favorable market. The State of New York has been unable to let contracts for four or more bridges for which bids have been received this month, owing to the advance in prices over the estimates on which the appropriations were based. We also know that the N. Y. C. & H. R. R. R. have determined to do no more bridge work than is absolutely necessary, which means the postponement of a large amount of work which that company have in view. Our own plant is at present occupied only to the extent of about 25 per cent. of its capacity."

A second New York shop replies: "Without going into detail or citing instances we know of cases in the highway bridge line where work has been put over on account of the recent increases of the price of metals. We think that a conservative estimate would place the percentage of our inquiries that are thus far affected at 10. We also know of several large buildings which have been put over for the same reason. Our works are now running at their normal annual capacity, we having work on hand for three or four months."

A third New York firm says: "Not the higher material prices have checked demand, but the inability of the mills to furnish the material promptly. Only about 25 per cent. of our capacity is engaged, from lack of possibility to get material."

A leading firm of builders of buildings report: "So far this season we notice no postponement of work on account of the rise in price of material, but we fear the effect in this direction of any further increase in cost. We believe in some instances, however, that work has been abandoned for the present on account of the inability to



complete within a certain time, due to delay in obtaining material. In reply to your second question we believe, as far as we are able to judge, the higher prices have not so far seriously affected the export business. If it were possible to obtain promptly material which we have ordered we would be working full capacity. As it is we probably are barely up to 75 per cent."

A New England builder reports to us: "We know of a few cases in the vicinity of New York City where work has been postponed on account of the high price of steel, and two of the railroad companies in Boston have stated that they should buy no more bridge work than they were absolutely obliged to until prices came down. So far we have not found that high prices have any effect on the export business. We have enough business to keep us running until next fall."

Another New England plant writes us: "We know of no work which has been postponed in this vicinity on account of rise in price of material. Our plant at the present time is fairly busy, with prospects of further orders in the immediate future."

An important firm in New England making a specialty of manufacturers' buildings report:

"We do not know of any structural work which has been postponed on account of the present rise in the price of material, but we do know of quite a large number of structures which have been put over until next season on account of the parties being unable to get their work completed in a reasonable time—all owing to the scarcity of material and the inability of the rolling mills to furnish material in a reasonable time."

"We are of the opinion that we can compete in the foreign market under the present price of raw material, but we believe that we are very near the danger point and that any further increase in the price will shut off this foreign market entirely. Our export business is principally in steel buildings, and we are losing a good many nice contracts because present prices are so dangerously near the home prices in foreign countries. Any advance will surely kill this work entirely."

"Our capacity is fully engaged at the present time; that is, we are running our works to their fullest capacity."

#### The Pittsburgh District.

A plant in the Pittsburgh district reports: "The only undertaking of any magnitude which has been postponed on account of the rise in material that has come to us is the Bellaire Bridge at Bellaire, Ohio. In this instance we are not positive whether it is the rise in the material or other conditions which prompts the projectors from discontinuing at the present. We expect that the present high prices will largely affect the export business. Our capacity is now fully engaged for a period of six months, with abundance of new work offering."

The president of another plant records the following: "My impression is that up to the present time the advance in material has not retarded construction, for the reason that to a considerable extent the product of the mills has been contracted ahead, and parties were anxious to get their work under construction so as to take advantage of the prosperous season which was anticipated. I think that there will be something of a reaction and that it will be difficult to maintain the present prices. The present prices or higher ones will certainly have the effect of restricting the export business."

A third mill in the Pittsburgh district reports: "The rise in the price of plain material has not to our knowledge, had the effect of postponing any considerable amount of contemplated work. The crowded condition of the bridge shops at the present time has probably more seriously affected the export business than the rise in price, although the latter has no doubt checked the export business to some extent. Our tonnage records show that we have sufficient business on hand to keep us running steadily night and day for the next five months."

A fourth replies: "1. Our experience is that the rise in prices of materials has worked both ways; in other words, it has had the effect of causing postponement of work or other methods of construction, while at the same time it has placed work on the market which has been 'hanging fire' to our own knowledge in numerous instances for several years. 2. The volume of our export business during the past three months has doubled and we have secured a larger percentage of this class of work than heretofore. 3. Our works for the past month have not been engaged to their fullest capacity, not on account of a lack of orders on our books, but from the fact that we have been unable to obtain material as promptly as it can be worked up. We have had to turn orders down for very desirable work on account of our inability to secure the material promptly. Inquiries for new work are plenty with us at present. We have booked some very desirable work and at the present time have sufficient work on our books to keep us going to our fullest capacity for at least four months."

#### The Indiana Gas Belt.

The president of a plant in the Indiana gas belt writes: "It is our candid belief that the exceedingly

great rise in the price of material in so short a time has had the effect of preventing a great deal of work being done which would have been done under conditions as they were at December 1, 1898. During the past ten years we have done considerable of structural iron work throughout this gas belt territory, such as buildings for iron mills, glass factories and other like industries. We felt the effect of the sudden rise in 1895, as the business in these lines had been both pleasing and profitable for four or five years previous to that time, and was satisfactory after the price of material went back to what it was in 1894. But the shock was felt by us very perceptibly in 1895. We do not care to be held responsible for particular instances where work may not have been done on account of the advance in material, but whereas, during the latter part of the year 1898 and the early part of January, 1899, we had more inquiries on account of structural building work than we have ever had in the same length of time, ever since the advance in metal began, about the middle of January, there have been fewer inquiries for this class of work than we have ever had since we have been in business."

"For three years last past we have been doing a great deal of structural work for the Steel Storage & Elevator Construction Company of Buffalo, N. Y., building for them a large elevator at Buffalo and another one at Ft. William, Ontario, and a smaller one at Glen Cove, L. I. During the last part of the year 1898 we had at one time as much as four contemplated jobs under consideration and on which we were making estimates. Up to this time only one of those contracts has been let. If the others have been built they have been built with wood instead of steel. Probably on an average 60 to 70 per cent. of our business is highway bridges. We cannot see that this class of work has been much affected by the advance in material, as the variations, in trade of this kind are more likely to be affected by political influences than by advance or decline in price of material. In the amount of tonnage and contracts in dollars and cents we have more on our books at this time than probably we have ever had at the same time of year, but it is due more to the fact that we have been unable to get material with which to complete all our work, and therefore clear our books, than to the fact that we have taken more work."

#### Western Shops.

A Western shop answers: "We know of no work postponed by reason of advance in cost of plain material. We have sufficient business on our books to run to our capacity, but our inability to secure delivery of plain material necessitates running at great disadvantage. New business is coming into the market with unusual activity."

The secretary of another Western plant makes this reply: "We are not aware of any work postponed in this section on account of the increase and do not think if prices stay about where they are it will stop consumption, but if they go any higher we fear it will have that effect. We are filled up with work for the next eight months and are now running ten hours per day and could run 24 hours, provided we could get material, which is our greatest difficulty at the present time."

Another producer writes us: "We have known of no cases where the rise in materials has had the effect of postponing work. Some work has been postponed or delayed, but only by reason of inability to procure materials even at the present prices."

"Our export business, which has thus far been confined to Mexico on the south, British possessions on the north and the Hawaiian Islands on the west, has been larger during the past six months than ever before."

"Our total capacity is now fully engaged or would be were we able to secure raw materials fast enough to keep our shop in operation. Our sales were larger in the month of April, 1899, than for any corresponding month in the history of our business. In our judgment the present price of structural iron and steel is not abnormally high, with the possible exception of plates. We believe that the present prices would only yield a fair and reasonable amount of profit to the various hands through which the product passes from the ore to the finished state if these profits were equally and equitably distributed. Up to the present time, however, it is possible that the ore producers have received practically little benefit of the advanced prices, and many of the rolling mills are still working on orders taken at the former low prices."

"In general we believe the present prices are about where they should be to insure reasonable returns for the labor and capital employed in the industry and are as low as the public good requires."

A builder in the Chicago district reports:

"There is no question but what a great deal of structural work will necessarily be postponed which would be built during the present season if it were possible. We do not believe that this postponement, up to this time at least, is due to the appreciation in price, nor to any anticipation of rising values, but rather to the inability of the rolling mills to give prompt deliveries of raw material, and the further lack of ability of the existing structural



iron plants to fill the orders which they now have on their books promptly, even if the raw material were furnished promptly. If it is argued that the rise in price is due to the short supply, the one thing, of course, follows the other; but we do not believe that this is entirely, if at all, the cause of the rise in prices. We do not understand that the market prices have as yet had any serious effect upon the export business, at least not in our case. Our plant is now engaged to about 25 per cent. of our annual capacity."

#### Dean Bros. Pressure and Speed Governor.

The combined pressure and speed regulator made by Dean Bros. Steam Pump Works of Indianapolis stops the pump when there is a tendency to produce overpressure, and sustains the desired speed for maintaining the re-

thus increasing the amount of steam admitted to the steam cylinder and maintaining the desired speed. Finally, when the desired maximum water pressure is reached the steam is shut off by the collapse of the spring *c* and closure of the ports in the stationary valve *o*. Thus the governor controls both the pressure and the speed of the pump.

This pressure and speed governor is made in sizes from  $\frac{3}{4}$  inch to 6 inches. Those 3 inches and below are of solid bronze, while the larger sizes are bronze lined.

**A New Chicago Record.**—The South Mills of the Illinois Steel Company, at South Chicago, Ill., broke last week the world's record of steel making in a single run. The new record is 1310 tons. The former record of 1301 tons was also held by the South Chicago plant. The company officials claim both records are far in excess of those held by any other steel mills in the world. The men en-

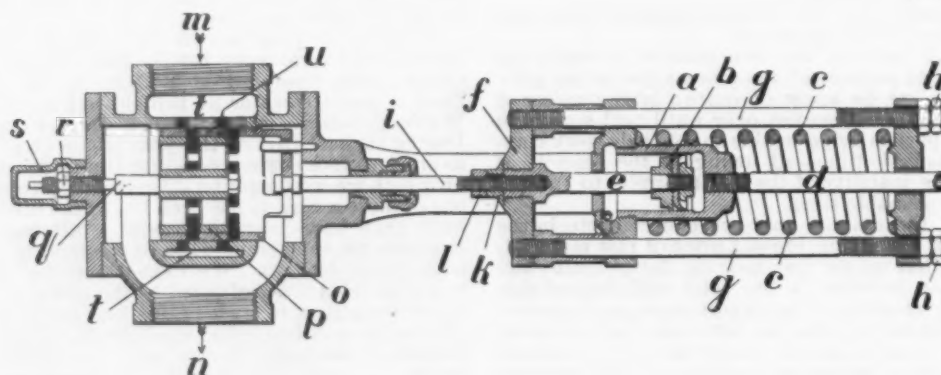


Fig. 1.—The Governor.

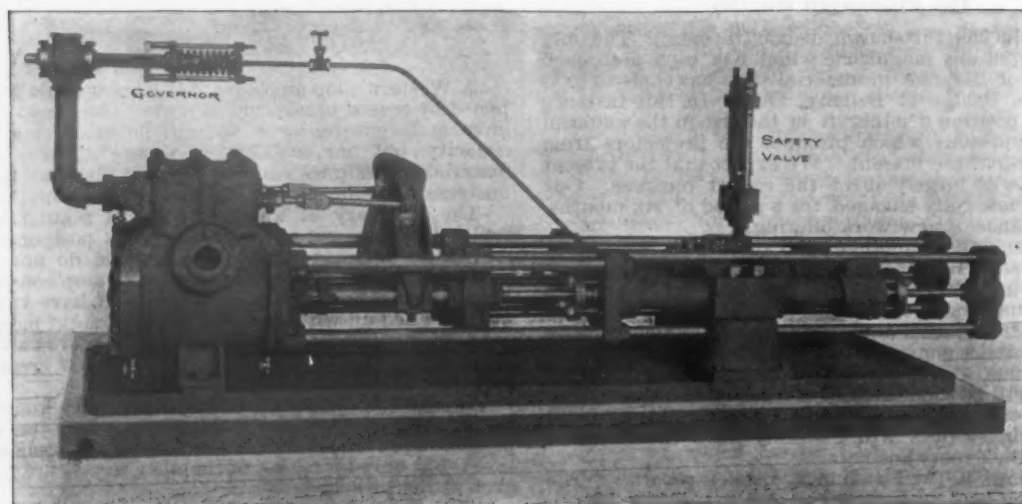


Fig. 2.—Governor Applied to Duplex Hydraulic Pump.

#### DEAN BROS. PRESSURE AND SPEED GOVERNOR.

quired pressure. If the hose or discharge pipe should burst, or if from any cause the water pressure should be suddenly released, the pump would not acquire a dangerous speed; on the contrary the governor would automatically close off steam sufficiently to prevent the pump from running too fast. It may be used either vertically or horizontally.

The construction of the governor will be understood from Fig. 1. Steam enters at *m* and passes out at *n*. The water pressure pipe *d* is connected to the governor cylinder *a*. The water pressure, acting on the piston *b*, though the piston rod *e*, cross head *f* and guide rods *g*, compresses the spring *c* and at the same time the valve rod *i* is moved, carrying with it the regulating valve *p* toward the left, thereby opening the casing ports *u* and admitting an increased amount of steam through the steam valve. When the valve *p* has moved a certain distance, by the compression of the spring the ports through the stationary valve *o* are closed and the pump is stopped. Therefore, when the pump is running with a light load steam is throttled by the regulating valve *p* and the speed is reduced to the desired point. As the load or pressure on the pump increases the water pressure acts to open the casing ports *u*,

gaged in this record breaking run were not selected for the occasion, but composed the ordinary night shift.

The annual meeting of stockholders of the William Cramp & Sons Ship & Engine Building Company was held on May 25 at the company's office in Philadelphia. The old directors were re-elected, with the exception of Ernest Thalman of New York, whose place was taken by Edwin S. Cramp. The Board is now made up of Charles H. Cramp, Thomas Dolan and Clement A. Griscom of Philadelphia, Henry Seligman of New York, and William H. Barnes, Henry W. Cramp, Samuel Dickson, Morton McMichael and Edwin S. Cramp of Philadelphia. The annual report showed that the total gross earnings from all sources were in excess of \$5,300,000, and the net earnings \$707,832, an increase over last year of \$133,991. The net earnings applicable to dividends were \$400,067, out of which two quarterly dividends were paid, amounting to \$121,200, leaving a surplus of \$287,867. At a meeting of the directors, held after the stockholders' meeting, Charles H. Cramp was elected president, Henry W. Cramp vice-president, and Charles T. Taylor, secretary.

### Limestone Consumed in Making Pig Iron.

For the first time the American Iron and Steel Association reports the consumption of limestone for fluxing purposes by the blast furnaces in the United States. In 1897 in the production of 9,652,680 gross tons of pig iron it amounted to 4,247,688 gross tons, of which 3,680,666 tons were consumed by the bituminous coal and coke furnaces in the production of 8,464,692 tons of pig iron, 524,271 tons by the anthracite and mixed anthracite and coke furnaces in the production of 932,777 tons, and 42,751 tons by the charcoal furnaces in the production of 255,211 tons. The average consumption of limestone for the whole country per ton of pig iron produced in 1897 was a little over 44-100 ton.

The total quantity of limestone similarly consumed in 1898 in the production of 11,773,934 tons of pig iron was 5,275,819 tons, of which 725,729 tons were consumed in producing 1,203,273 tons of pig iron made with anthracite and mixed anthracite coal and coke; 4,502,209 tons were consumed in producing 10,273,911 tons of pig iron made with bituminous coal and coke; and 47,881 tons were consumed in producing 296,750 tons of pig iron made with charcoal. The average consumption of limestone for the whole country per ton of pig iron made in 1898 was almost the same as in 1897, the figures being 448-1000 ton, or about 8-1000 ton more than in 1897. The average consumption of limestone to the ton of pig iron in the United States in 1897 and 1898 was a little less than  $\frac{1}{2}$  ton.

### Self Traveling Trolley and Air Hoist.

The Pneumatic Crane Company of Pittsburgh, Pa., are putting on the market self traveling trolleys and overhead traveling cranes using compressed air as a motive fluid.

The trolleys, Fig. 1, are designed to travel any distance, turn corners, switch from one track to others, &c. They can be made to run at any desired speed, lift and transport light or heavy weights, switching automatically, stopping, unloading and starting back automatically, being a mechanical means for doing away with the hand truck and tram system.

The device by which compressed air is conveyed to the trolleys and overhead traveling cranes is shown by the accompanying drawings, Figs. 3 to 10, and is as follows: Along the runway made by I-beams a feed pipe is suspended and inclosed by a thin steel casing having a slot at the bottom, Figs. 7 and 9. The feed pipe is made of cold drawn tubing in lengths of 10 feet. The tubes are joined together by couplings, making one continuous pipe without surface obstruction. Each coupling also forms the

traveling cranes, of such a diameter as to allow sufficient area between the outer wall of the feed pipe and the inner wall of the receiver pipe.

The receiver is made long enough to more than cover two valves or couplings at one time, and the ends are

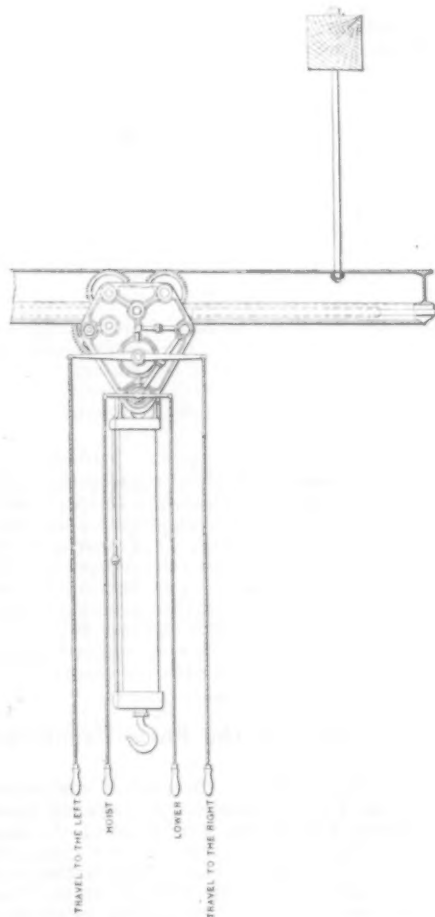


Fig. 2. - Self Traveling Air Hoist.

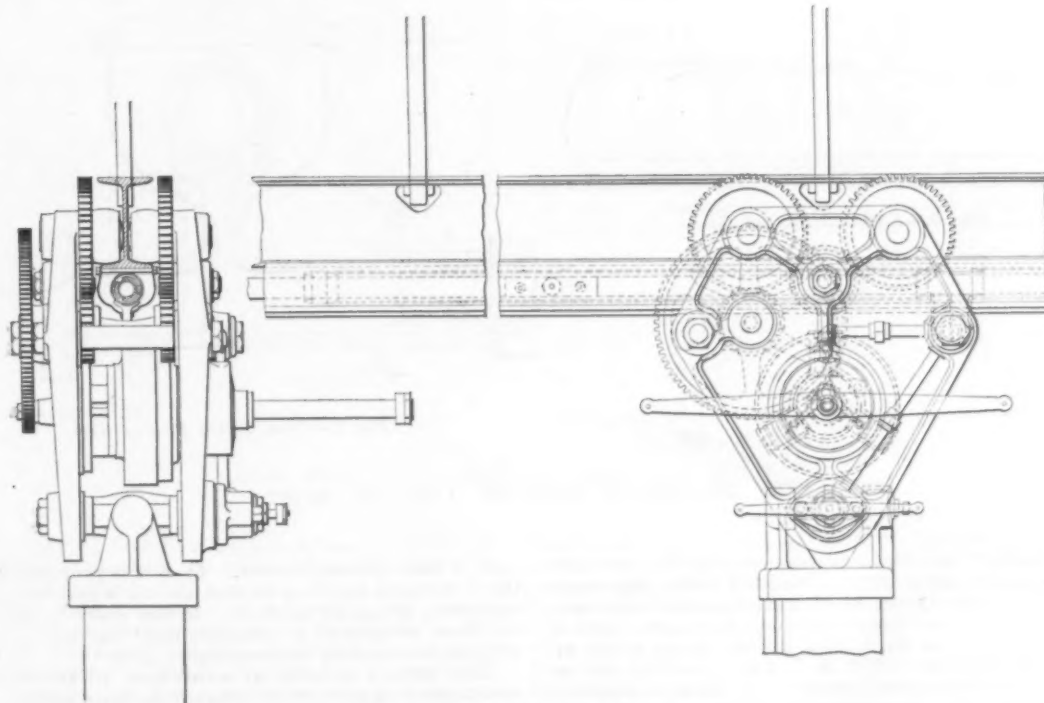


Fig. 1. - Self Traveling Trolley.

### SELF TRAVELING TROLLEY AND AIR HOIST.

body for a valve and incloses the valve operating mechanism, as is shown by the drawings, Figs. 3 and 5. Surrounding the feed pipe is a receiver, which is made flexible for trolleys required to turn corners and rigid for overhead

closed by means of a stuffing box, making an air tight joint between the receiver and the feed pipe.

The interior of the receiver pipe has a narrow ridge running from stuffing box to stuffing box, filling the space

between the feed pipe and the receiver and along the path of the valve, opening tappets for the purpose of keeping the valves from closing while they are in the receiver. The receiver is made fast to the trolley or crane and of necessity moves along the feed pipe and through the casing, automatically opening and closing the valves. From the receiver the compressed air is led to the trolley or crane motors, thus insuring a continuous flow of motive fluid from the generators to the crane or trolley as they travel along their runways.

The feed pipe and receiver being inclosed in a casing for the purpose of preventing dust from settling on the feed pipe, connection is made from a trolley or crane

space, which could be increased by 8000 square feet if a gallery were added, making the possible available floor space about 34,000 square feet.

None of the funds of the United States Commission having been added to by Congress, no sum is available for this structure, and the meetings were called upon to express an opinion on the question of erecting this additional building by the exhibitors at their own expense, distributed *pro rata*.

Naturally there was much disappointment at the fact that the main exhibition of machine tools would thus be transferred to Vincennes, but there are two points which make it likely that the plan proposed is the best solution

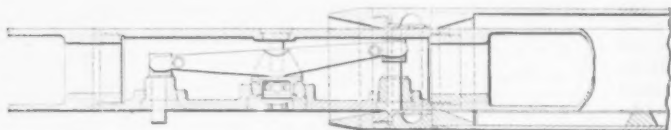


Fig. 3.—Valve Mechanism.

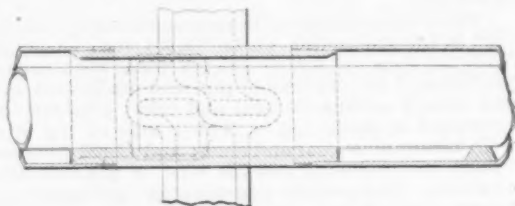


Fig. 4.—Feed and Receiver Pipes.

through a hollow arm of elliptical section, the arm being a part of the receiver which extends through the slot of the casing, spreading it apart as it moves one way or the other. The receiver arm, Fig. 7, is provided with two passages, one to lead the air to the motors and the other to lead the exhaust air from the motors into the casing for the purpose of creating an outward current of air from the casing and also to catch the exhaust lubricants from the motor to lubricate the surface of the feed pipe and the sliding contact of the receiver with the casing.

of the problem. First of all, it appears that the exhibits of all the countries of appliances of traction of all kinds are to go to Vincennes. This includes all automobiles, bicycles, street and railroad traction appliances. Since these branches are among the leading customers of American machine tools and wood working machinery the exhibitors would be close to those from whom a heavy

#### Machine Tools at the Paris Exposition.

When Francis E. Drake, director of machinery and electricity at the Paris Exposition, was abroad recently to study the situation from the standpoint of the American exhibitors, it became clear to him that the space available for the exhibits of the metal and wood working tools and accessories allotted to the United States in the Champ de Mars building was altogether inadequate to afford a solution of the perplexing questions involved. He secured a concession for the erection of a building at the Vincennes annex to the exposition. After consultation with the leading firms in England, France and Germany who repre-

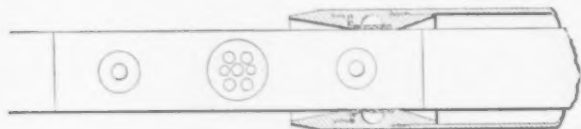


Fig. 6.—Feed and Receiver Pipes.

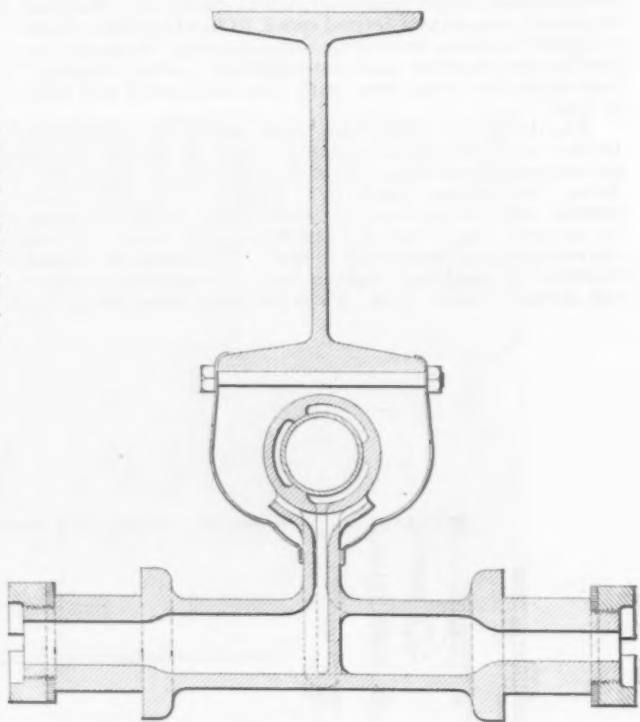


Fig. 7.—Cross Section Receiver Arm.

#### SELF TRAVELING TROLLEY AND AIR HOIST.

sent and market American machine tools, who assented to his plans, the latter were submitted to the American builders of machine tools, wood working machinery and accessories. Two meetings were called of the parties interested, the one at New York on May 17, at which 41 were present, and the other at Chicago on May 23, at which about 20 representatives attended, the total number of applications in the class being about 125. At Chicago Mr. Drake himself explained the situation, while at New York James S. Anthony, Eastern assistant director, addressed the meeting.

The original space available for this department of metal and wood cutting tools and accessories in the Champ de Mars is about 11,500 square feet net. The plan is to put up a building at Vincennes consisting of a main aisle commanded by a traveling crane and two bays. This would yield about 13,500 square feet net of additional floor

part of their demand comes. Then it is proposed to equip the Vincennes building so that the tools may be shown in operation, doing actual work. In the space in the Champ de Mars section it is possible only in some cases to arrange for turning the machinery over.

The idea is to allot to exhibitors in the Vincennes annex some space in the Champ de Mars section, which they may use either to show a few typical tools or which they may employ for headquarters to give information and direct visitors to the machinery at work at Vincennes.

It is estimated that the *pro rata* cost to exhibitors in the Vincennes section, of machinery at work, will be about \$1.25 per square foot of floor space. While the space in the main building at the Champ de Mars is free there is a charge for flooring, railings, &c. Just what this will figure out it is difficult to state, but it is estimated that in any case it will be about 40 cents per square foot.



We understand that at the meetings referred to the representatives of the machine tool trade, after a full explanation of the situation, expressed their approval of the plan, and that since then assent to it has come from other interests not at the time personally represented.

**The Iron Works and Other Industries of Sao Paulo, Brazil.**

The commercial crisis that Brazil is even now passing through naturally affects the State of São Paulo, and in consequence there is still a great depression of business, but this is felt less in this State than in any of the others

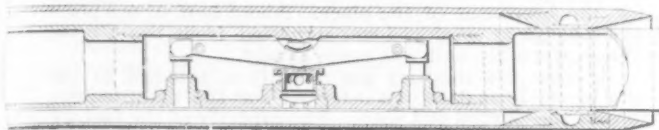


Fig. 5.—Valve Mechanism.

forming the Union. The low price of coffee, the low rate of exchange and the extravagances of the Government have contributed largely to the suspension of commercial relations, but the crisis is but temporary. Recently established and projected large enterprises give the hope of a future revival all around. From an industrial point of view, and not least so in regard to the construction and operation of iron and steel works, Brazil is very backward, but São Paulo lays claim to being, and probably is, the most progressive in this respect, there being in and

away at Ypanema in the municipality of Sorocaba, and to this day the only iron mining carried on in São Paulo is at Ypanema, although it has been proven that much finer grades of ore are to be found in richer deposits in the municipalities of Iguape, Parnahyba, Jundiaby and Sao João de Boa Vista, all in the State of São Paulo.

After the death of Sardinha in 1630 the Catalan forges were abandoned until the year 1760, when new furnaces were built with leathern bellows and a trip hammer. In 1801 a blast furnace with hand machinery to furnish the blast was erected. In 1811 the works became the property of the Government, and four Stückofen furnaces were erected for the making of bar iron, but the character of the ore from the old mine was so refractory that the yield was only 1 ton of iron for 41 of charcoal, making the value of the metal only two-thirds that of the fuel—needless to say this did not last long, and blast furnaces were then decided on and erected with proper blast appliances, and as improvements have been made continually since then, the system now in use may be said to be almost up to date.

Bar and pig iron are both made at these works, but in January of this year the works were practically closed, due to the poor quality of the ore and the seeming indisposition of the Government to expend any money toward opening up any of the other and better deposits in the State.

The State of São Paulo has an area of about 300,000 sq. km., and a population of 1,800,000, including a number of Indians that still hang on in the northeastern portion of the State. The capital, São Paulo, is the distributing center for the neighboring port of Santos. In 1893 the population of the capital was (by census) 143,000, and at present it is no less than 230,000.

Five large railways connect São Paulo with Rio de Janeiro, with Santos and with the interior of the State;

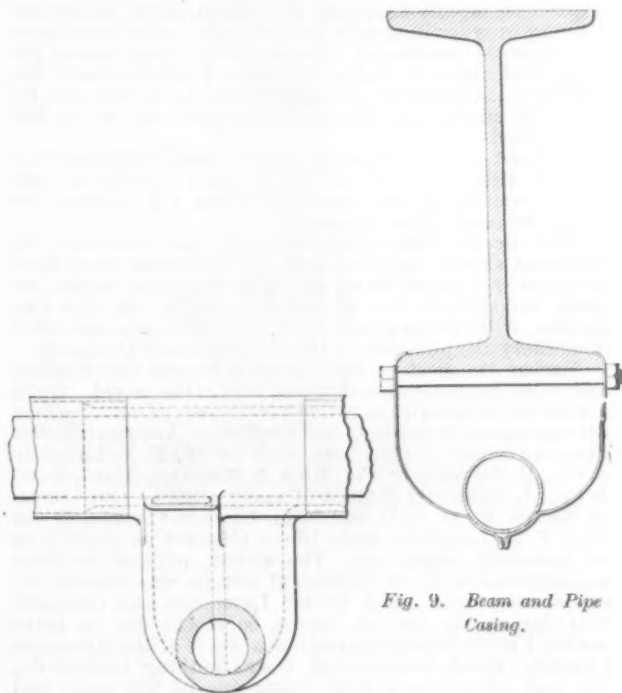


Fig. 9. Beam and Pipe Casing.

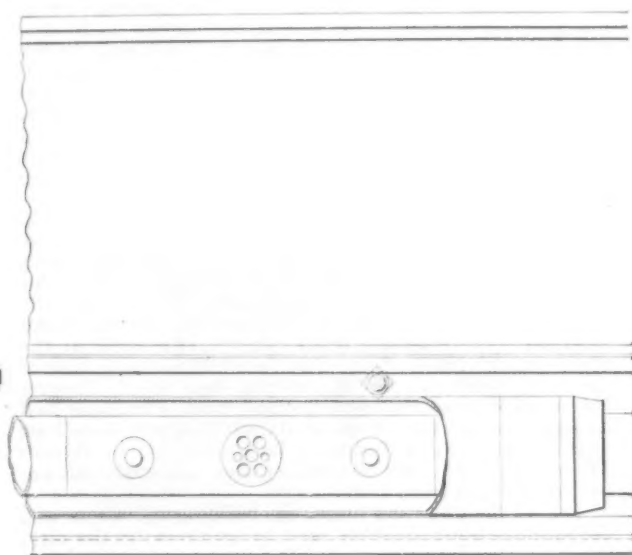


Fig. 10.—Sectional Elevation Fig. 9.

Fig. 8.—Section Fig. 7.

**SELF TRAVELING TROLLEY AND AIR HOIST.**

around the city of São Paulo quite a large number of manufacturing industries in which new and improved machinery and methods are employed.

There are quite a number of iron works of various capacities in the country, among which may be mentioned the Hime in Nictheroy and that of the Cia. Nacional de Forjas e Estaleiros in Rio de Janeiro, the Usina Wigg in Minas Geraes, near the manganese mines at Miguel Burnier, two under German management in Porto Alegre, one in Bahia, one in Rio Grande do Sul, and the Ypanema near the city of São Paulo, as the largest and best.

The Ypanema are (the Brazilians boast) probably the longest established iron works in the Western Hemisphere, they having been built in 1590 by a Portuguese named Alfonso Sardinha, who set up and worked until his death some 39 years later two Catalan forges.

The iron ore employed was mined only a short distance

the English São Paulo Railway with Santos, the Government Central Railway to Rio de Janeiro and Minas Geraes, the Brazilian Paulista Railway to Jahu in the northwest, the Brazilian, Mogyana to Mococa in the north and the Sorocabana to Itapetininga in the west. Two other short lines in the interior of the State are the Brazilian Ytuana, connecting Ytu and Piracicaba, and the Bragantina, connecting Atibaia and Braganca. These railways, excluding the Central, which should be considered rather as belonging to Rio, have a combined mileage of about 1762 miles.

Several concessions have recently been granted for the construction of new lines, the principal ones being from Ubatuba to Taubaté, a distance of about 150 km.; from Araraguara to Ribeirão-Sinho, a distance of 73 km.; Rio das Pedras to Pederneiras, 35 km., and Engenheiro Mendes to S. Anna da Vargem Grande, 25 km. Besides these new roads the Paulista Company are now engaged

in constructing 102 km. between Jaboticabal and Barreto and 47 km. between Dois Corregos and Porto Ribeiras; the Mogyana Company in constructing 250 km. between Ressaça and Santos and 110 km. between São Simão and Sertãozinho; the Sorocabana Company in constructing 263 km. between Itapetininga and Itararé, 334 km. between Rio Novo and Tihagy and 41 km. between São Manoel and Lencôes. The English São Paulo Company are now engaged in completing the double tracking of their line from Santos to Jundiáhy and the building of a large new station at São Paulo.

These railway improvements and extensions alone should prove to American merchants and capitalists that São Paulo merits considerable of their attention. That the Germans and English realize the importance of the place is shown by the amount of their capital invested and the large and increasing number of German and English business houses located there. Both English and German capital is being largely invested in coffee plantations in the district, the English Fazenda Dumont being the largest coffee plantation in the world. The third largest coffee estate has just been purchased by a combination of English and German capitalists. Negotiations are now going on for the sale of the Penteado hessian (coffee bag) factory and woolen mill (recently built) in São Paulo to an English company.

The control of the Cia. Viacão Paulista (São Paulo Tramway Company), that carried over 25,000,000 passengers in 1897, has just been obtained by French capitalists, who project the early altering of the system from animal to electric traction. The same interests have recently purchased two cotton mills near the city, so it can be seen that the French are also alive to their opportunities.

As there are some 900,000 Italians in the State, it is only natural that quite a number of the smaller industries should be influenced by them, but the large majority of them are employed as coffee pickers on the large plantations. Among the industries in the capital in which they take a leading part may be mentioned furniture making, boot, shoe and harness making and the manufacture of macaroni, of which the Brazilians are almost as fond as the Italians themselves. The factory belonging to Romanelli & Co. is the largest engaged in the manufacture of macaroni, turning out about 5000 pounds per day. The machinery employed is of German manufacture, and the power is furnished by a Robey 20 horse-power motor. A factory for the manufacture of fine furniture has just been opened by Zurlindo & Irmão, with new and improved wood working machinery from Germany.

Another increase to the industries of São Paulo has just been made by the establishment of a large cotton textile mill at São Bernardo, the most of the machinery having come from England. The monthly output of this mill is about 100,000 yards. In January last this mill received 85,453 pounds of cotton yarn from Germany and England. There are five other cotton textile mills in the State—namely, that of the Cia. Fabril Paulista, that of the Cia. Industrial de São Paulo, that of A. Alvares Penteado, that of Santos & Co. and that of Enrique Dell Acqua. The last named are an Italian firm, who have four or five large mills in Piedmont, Italy, and one in Buenos Aires. All necessary machinery and materials are imported by them from Italy.

Due to the large and numerous building operations and the sanitary improvements now in progress in the city, the quantity of cement needed is increasing constantly, so much so that a large plant with a capacity of 100 tons has just been started at Radovalho, about 5 miles outside of São Paulo, the machinery having been purchased in Germany. At Radovalho there are also large establishments for stone cutting, brick, tile and drain pipe making, sash, and door making and for the manufacture, on a large scale, of agricultural machinery (principally coffee machinery). The machinery for the various factories is mostly from England and Germany, although a small portion is from the United States. In the manufacture of coffee machinery there are three other factories engaged, the most important of which employs about 550 hands and turns out about 500 tons per month. More wrought than cast iron is used by these factories.

The most important bag factory in Brazil is the Penteado, for the sale of which negotiations are now going on with an English company. This factory contains 600 looms, with a monthly capacity of 1,300,000 yards. The factory has two English steam engines of 350 and 100 horse-power, respectively, a large condensing tank and a railway siding. The present owner, a rich Brazilian, expects (if the sale is not made to the English syndicate) to largely increase the number of the looms, and is even now equipping a woolen mill (that has been erected alongside the bag factory) with 90 looms and a 300 horse-power engine that were purchased in England. Should the sale not come off it is his intention to largely increase the number of looms and to install an electric light plant. It is asserted by persons in a position to know that the deal will not come off, due to the heavy price demanded by the owner, so it might be well for manufacturers supplying these classes of machinery and materials to com-

municate with Senhor A. Alvares Penteado, Rua Florida-au-Braz, São Paulo, Brazil.

There is also a new and well equipped factory in São Paulo for the manufacture of twine (from Italian hemp) for sewing the coffee bags. The machinery and two engines are all of English make.

The brewing industry is finely developed in São Paulo, there being many breweries of various sizes working steadily on either the American or German plan, and a considerable portion of the machinery is of United States manufacture.

The two largest breweries, the Antartica and the Bavaria, have an immense output of Pasteurized beer, which is as fine in quality as any of the imported beer.

The two glass factories located in São Paulo have recently enlarged their plants, and now make and cut fine glassware, as well as common glass and the glass bottles for the breweries of the place. About half of the plant and machinery employed was imported from the United States, the other half was made locally.

Another new industry was recently established in the city by the formation of a company for the manufacture of stearine candles and soap. The capacity of the factory is now about 110,000 pounds of candles and 400,000 pounds of common soap monthly. The machinery, steam engine of 50 horse-power and the three boilers employed are of German and French manufacture.

The caustic soda used in the soap is imported regularly from England.

Tanning is carried on to a limited extent only, the old cold liquid system being the only one employed, but there is a tendency to do away with this antiquated method and purchase new and improved plant and machinery.

Boot, shoe, harness and hat making are carried on in a small way, mostly with locally made machinery, but this is also gradually being replaced with new and improved machinery of foreign manufacture.

Due to the heavy tariff placed on imported boots and shoes both the tanning and shoe making industries are expanding rapidly and must soon install labor saving machinery in order to satisfy the demands. The installation of improved machinery is also commencing among the cigar and cigarette factories, and a healthy rivalry has sprung up between the manufacturers as to who can lay claim to employing the most improved and up to date machinery.

At least one American machinery manufacturing firm, that of Miller, De Brul & Peters, have profited to some extent recently by this competition, but the Germans are doing the most of the business.

The electric light establishment that furnishes the principal streets and buildings of São Paulo with light occupies an area of 500 sq. m. The two large steam engines and boilers are of German origin, but the two motors, of 80 horse-power each, two dynamos and other machinery are products of the Westinghouse Company.

Santos, the port of São Paulo, is distant but 58 miles, and is the largest coffee shipping port in the world. Quite a number of Americans reside here, most or all of whom are managers or clerks of the numerous American coffee shipping houses located here, such as W. F. McLaughlin & Co., E. Johnson & Co., Rose & Knowles, Hard, Rand & Co., J. Haugwitz & Co. and many others. Our Consul at Santos, F. D. Hill, and Wm. Lawrence, manager for Wm. F. McLaughlin, make life as pleasant as possible to all traveling Americans. The writer, without previous acquaintance with, or credential letters, was literally received with open arms by Mr. Lawrence, and informed that during my stay in Santos, be it one day or three weeks, I must consider myself as a guest of the American Chacara (which, truth to tell, I was nothing loath to do, the lack of a decent hotel being one of the many bad points of Santos), and during my stay under that roof met with more hospitable treatment than is to be found elsewhere in all South America.

The American Chacara of itself is a large and airy residence, surrounded by fine large gardens, in which grow a great profusion of all kinds of vegetables, fruits and flowers that can be raised in Brazil, and is situated on the bay front in the healthiest portion of the city. The property was purchased and furnished by a number of the unmarried Americans resident in Santos some years ago, but of the original members of the club there are none now in Santos, they having one by one been recalled to the United States, and before going sold their share in the property to the applicant who was elected by the remaining members to fill the vacancy. At present there are but two Americans and four Englishmen members of the American Chacara.

Of the cities in the interior of the State of São Paulo Campinas is the most important, having a population of about 45,000 inhabitants. Its importance is, however, attributable to the fact that it is the center of the richest and most important coffee zone in the world, and not to its manufacturing industries, which are few. All manufactured articles are drawn from São Paulo, so it would seem that in view of the wealth of the place many industries could be profitably started by energetic young men



with but little capital. In fact, it may be stated that the State of São Paulo offers exceptional opportunities to our young men (with but a small amount of capital), who would be willing to separate themselves for a number of years from home and friends and engage themselves in manufacturing, with American machinery, one of the many articles of every day use on which the Brazilian Government has imposed a heavy import duty.

C. PAULO REI.

### The American Twist Drill Grinder.

In the design of the American twist drill grinder L. S. Heald & Son of Barre, Mass., have aimed to overcome the faults found in some of the old machines. In some machines there is difficulty in holding small drills easily and firmly when grinding them. This is for the reason that a stationary lip rest has its line of drill contact so much inclined to one side to properly position the larger sizes that a small drill meets with too little resistance to rota-

tion. The required adjustments automatically, for the reason that the holder strikes it at a lower point when adjusted for large drills than for small ones. In this way the upper end of the holder can come up close to the wheel for small drills, as is necessary, yet is kept off far enough for large drills to prevent its coming in contact with the wheel.

Heretofore the method of adjusting machines for grinding has been to adjust the holder on the bracket so that the end of it would have the required radius of motion about the axis of oscillation, and then these, together with the sleeve, are moved bodily up to the grinding wheel. Aside from the difficulty in getting it close enough without getting it onto the wheel, there is considerable variation in the settings given it at different times and by different workmen, it sometimes being set up close and at other times being left off quite a distance. In this grinder, however, the sliding sleeve is constructed with one of the caliper jaws upon it, and therefore in calipering the various sizes of drills this sleeve is adjusted lengthwise proportionately to the diameters of the drills. As this sleeve carries the oscillating bracket and contains the axis of oscillation it follows that this axis is also moved proportionately to and from the wheel according to the various sizes of the drills. Thus the theory and method of operating is to first locate the axis of oscillation relatively to the grinding face (which by this construction will always be the same for a given size of drill) and then utilize the adjustment of the drill holder on the

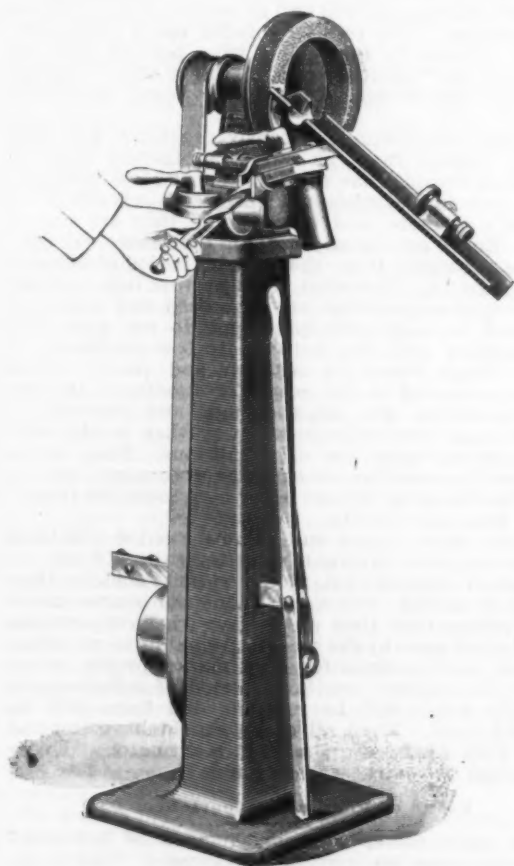


Fig. 1. - Grinder on Column.

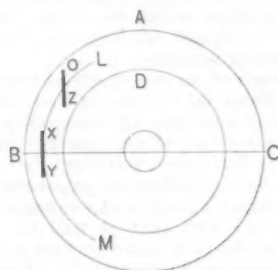


Fig. 2. - Sketch Showing Position of Drills in Ordinary Holder.

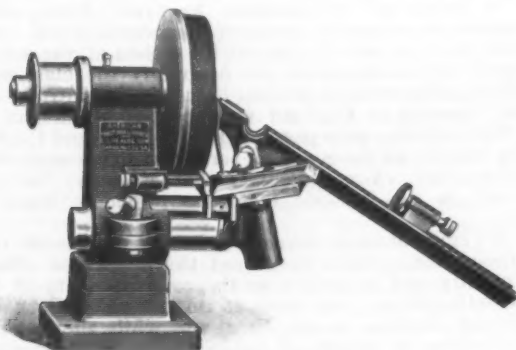


Fig. 3. - Grinder for Bench.

### THE AMERICAN TWIST DRILL GRINDER.

tion. To overcome this the grinder here illustrated has been constructed with a movable lip rest which swings automatically. For small drills the lip rest stands up nearly straight, and for large ones swings back sufficiently to give them the proper setting. In this way the desired firmness for small drills is obtained, together with the best shape of drill lip at all settings.

There has also been trouble caused by the end of the drill holder getting against the wheel, which grinds off the rest, which must be frequently renewed. This is caused either by carelessness in sliding the holder up to the wheel or by setting the end of the holder so close to the wheel that it swings against it when oscillated. The end of the drill holder must be set nearly  $\frac{1}{8}$  inch further from the wheel for a 2-inch drill than for a  $\frac{1}{4}$ -inch, in order that the holder shall just swing clear of the wheel at all settings. This is usually done by eye, but in this grinder a stop is provided which co-operates with the drill holder to correctly locate it at all times. This stop is mounted on the movable caliper jaw (which is moved back only as the wheel wears back) and this stop effectually prevents the holder from being crowded against the wheel, however careless the workman may be. Since it is also necessary to keep the drill holder further away from the wheel when set for grinding a large drill, this stop is constructed with an inclined face, which gives

bracket simply to bring the end of the holder up close to the wheel, the exact distance therefrom being governed by the inclined stop above described.

There is one other feature which is of importance. This is the height of the drill point relatively to the wheel when grinding large drills. In order to grind a drill properly in a grinding machine of this kind it is essential that the lip of the drill should be presented to the wheel substantially at a tangent to the grinding circle, otherwise irregularities in the face of the grinding wheel will produce irregularities in the drill lip. In some machines the drill holder is adjusted for different sizes of drills on an incline parallel to the drill, and so for the large sizes it is run far up on the wheel. Moreover, a large drill lays much higher up in a V-groove than a small drill, so the combined result is to carry the end of the large drills very high up on the wheel. This is illustrated graphically by the sketch, Fig. 2, in which A B C D represents the face of an emery wheel of the cup form. X Y represents the relative position of the drill lip in this grinder for all sizes, showing that it is tangent to the grinding circle L M. When the drill lip is elevated, as is the case with old style machines when set for large sizes, the relative position with respect to the wheel is as indicated at O Z, from which it is evident that irregularities in the face of the wheel will produce irregularities in the drill lip. It is not possible with



this construction to have the drill lip stand parallel to the axis of oscillation and also be anywhere near tangent to the grinding circle. Therefore either the wheel will grind off from the cutting edge, producing a feather edge and duplicating the irregularities of the wheel face in the shape of the lip, or the drill must be rotated in the holder till the lip is tangent to the grinding circle, which it is impractical to do, on account of the incorrect shape given the drill point, due to the incorrect position of the lip in relation to the axis of oscillation.

This trouble is avoided in the new grinder by the simple arrangement of making the adjustment of the holder on the bracket at right angles to the axis of oscillation. This construction keeps the end of the drill always at the same height with respect to the grinding wheel for all sizes of drills, because the amount that the holder is raised or lowered by the adjustments on this incline just offsets the amount that the various sizes of drills lay higher or lower in the V-grooved holder. The drill is therefore easily kept tangent to the grinding circle at all times, and in no case does the wheel grind off from the cutting edge, which would give the much disliked feather edge.

## Industrial Consolidations.

An Address by Charles R. Flint of New York.

Charles R. Flint of New York, a merchant who has been closely identified with one large "trust," was the guest of honor at a dinner in Boston. He delivered the following interesting address:

The organization of large industrial corporations is the most prominent financial feature of the present revival of prosperity, and our host has introduced a subject of immediate importance to all of us, whether interested in industry, commerce, finance or politics.

While I have had considerable experience on the practical side in the organization and management of industrial corporations, I feel that it will be difficult for me to present any ideas that may be new to you, who have such wide knowledge and experience. There is, however, satisfaction in comparing notes upon a subject of such vital interest.

The time has gone by when it is necessary to argue as to the right of large aggregations of capital, for the purpose of industrial development, to exist. Every great movement in the world's progress has been opposed. Machinery has done more to benefit labor than all the acts of reformers or governments, yet originally the class most benefited endeavored to prevent its use. The introducing of fast coaches in England was opposed to such an extent that petitions were presented to the King and Council asking that no public coach be permitted to go more than 30 miles a day. You remember that Macaulay, in commenting on this historic fact, was prophetic when he wrote:

"We smile at these things. It is not impossible that our descendants, when they read the opposition offered by cupidity and prejudice to the improvements of the nineteenth century, may smile in their turn."

We are smiling in our turn, but, while the fact that combinations of wealth, of judgment, of experience and of executive ability are now generally recognized as a natural evolution in industrial development, all reflective men appreciate that, as mistakes have been made in the development of other great institutions, in the State and even in the Church, so mistakes have been and will be made in the organization and management of industrial enterprises; and at this time, when so many industrial corporations are being organized, it is important that we should compare views in order to minimize mistakes.

Fortunately, the capitalizations of most of the industrial corporations which have recently been formed have been clearly defined, and have been based principally upon the earnings for the past five years, during the greater part of which time "America has been wearing her old clothes." Business is active to day, and promises to be more so to morrow. Profits are, and for the near future must continue to be, large. Add to this the advantages which will accrue from economies and other benefits secured by consolidation, and statements of profit will be rendered which will have a tendency to turn men's heads. The wise managers of large industrial corporations will charge off substantial amounts for depreciation and increase the surplus out of the unusual profits resulting from the increased demand and the decreased cost of production.

### A Danger of the Future.

The danger point, in my judgment, will be reached when new capitalization is created based upon the abnormally large earnings of this period of prosperity and an undue advance in the quotations of existing securities takes place, in consequence of unexpectedly favorable statements of profits. The most successful railroad com-

panies—combinations that have stood the test of time, the best examples of the advantages of aggregated wealth and intelligence—have increased their reserves in good times, so as to be in a position to pay dividends in hard times.

At the close of the period of depression from 1873 to 1878 I noticed that after some months of improvement there was a disposition on the part of many conservative men to take their profits by selling their securities. The public which purchased those securities made money, because there was continued prosperity. After two years had elapsed there was a general feeling that prosperity had come to stay, that it had become permanent, and the men who had shaken their heads when the mercury in the financial thermometer was up only one-third of the way departed from their conservative policy when it reached the top and argued that reactions such as had occurred in the past could not recur; that the political system had been perfected; that the wealth of the country had enormously increased; that the conditions of business activity were firmly established; that continuous economic development was inevitable—and if you recall the names of those who invested at that time in the securities of the companies organized for the purpose of paralleling the New York Central, you will find in the list the very pillars of conservatism. The result reminded me of the remark of Larry Jerome to the guide who pointed out the Coliseum as the "greatest ruin in the world." Jerome remarked: "He evidently has never heard of Pacific Mail."

Industrial corporations, properly organized and well managed, because they can buy, manufacture and distribute more cheaply than their weaker and less able competitors, have an inevitable and a necessary advantage in the world's markets, and to my mind they are sure to prosper. But I am equally certain that there will ultimately be a reaction from the present period of unusual business activity. The vital point at this time is to see that industrial corporations are organized and managed upon sound business principles, and do not rush into overproduction, and thus help create the conditions of inflation which result in reaction and panic. What should be preached is the gospel of steadiness, and the new corporations are large enough and controllable enough to make for steadiness in a way that would have been impossible under the old conditions. They can in case of need be made the instruments of economic safety, just as the Clearing Houses have been made the instruments of financial stability.

The time when a check will be most needed will be at a later period, when favorable returns resulting from the advantages of consolidation, plus the profits made in time of great prosperity, will make industrial shares much more in fashion than they are to-day: when corporations shall be looked upon by the speculative public as affording exceptional opportunities for stock market profits; when we reach the almost inevitable period of inflation and boom. The result will be reaction, and there will be danger of a crash. Then all of us should have in mind 1893 and 1896, when, to quote C. P. Huntington, "Every man who had two shirts was in trouble."

### Value of Personal Experience.

In the organization and management of industrial corporations there are certain disadvantages. One of the dangers is jeopardizing at the outset what is generally the most valuable asset of an industrial consolidation—namely, the good will of the successful companies which are included in the consolidation. Each company, by years of honest dealing, have established relations of confidence with their customers, who are satisfied with their products and their methods. The danger comes when, upon the completion of the consolidation, some enthusiastic member of the newly formed Executive Committee, carried away by the theories of centralization, and believing himself to be a Napoleon of industry, attempts to centralize the business too rapidly and too dictatorially, destroying existing organizations, thereby injuring the good will and endangering the whole.

But experience has proved that in such cases you can rely upon the rare common sense of the hard headed practical men who have built up the industry. In my judgment, the greatest care should be taken in organizing new consolidations to retain the services of such men. In several industrial consolidations in the organization of which I have been recently associated I have urged at the beginning that the individuality and independence of the several concerns shall be sustained, and that the endeavor shall be to bring the standard of all up to that of the best, and not to centralize the business in such a way as to prejudice the good will of successful concerns.

Another disadvantage: While the financial interest of the individual intrusted with the local management of a sub-company or plant is as large in amount as before, his percentage of interest, owing to its being merged with other concerns, is very much less, and the inducement to exertion and economy is not as large as before. In the export and import business we are able clearly to divide

our business into departments, according to countries or staples, interesting each head in the department which he manages. Here the departments are independent. In case of the consolidation of manufacturing corporations, such an arrangement is very difficult, as there is likely to be a conflict of interest, owing to their interdependence. It is, therefore, undesirable to have any individual interested otherwise than in the common result.

An offset to the disadvantage of a reduced percentage of personal interest is accountability through accurate monthly comparisons of methods and results between the several plants. Managers are very ambitious to have their work compare favorably with that of others. The manufacturer thus has the advantage of comparisons with co-workers in the same line, every improvement is for the benefit of all and manufacture and methods of distribution are brought to the highest state of efficiency and economy.

In studying the industrial situation it seems to me well for us to take advantage of the experience in London, where the capitalization of manufacturing concerns commenced in a large way before it was undertaken in the United States. I find that the amount of the capitalization of industrials in England has aggregated \$2,000,000,000.

In many cases the capitalization has consisted of putting in form for investment private businesses, instead of consolidating many companies into one large corporation, as has recently been done in this country. The \$2,000,000,000 of English industrial securities have been, as a rule, most satisfactory investments and have averaged more profitably than most others. Their failure has been the rare exception.

#### Benefits of Consolidation.

In this country, in addition to getting the advantages of putting private businesses into corporate form, we are obtaining the benefits of consolidated management. We thus secure the advantages of larger aggregations of capital and ability. If I am asked what these are, the answer is only difficult because the list is so long. The following are the principal ones: Raw material bought in large quantities is secured at a lower price; the best quality of goods is produced; the specialization of manufacture on a large scale in separate plants permits the fullest utilization of special machinery and processes, thus decreasing cost; the standard of quality is raised and fixed, the number of styles is reduced, and the best standards adopted; those plants which are best equipped and most advantageously situated are run continuously and in preference to those less favored; in case of local strikes or fires the work goes on elsewhere in such a way as to prevent serious loss; there is no multiplication of the means of distribution, a better force of salesmen takes the place of a large number, and the same is true of branch stores; terms and conditions of sale become more uniform, and credits, through comparisons, are more safely granted; the aggregate of stocks carried is greatly reduced, thus saving interest, insurance, storage and shop wear; greater skill in management accrues to the benefit of the whole instead of a part, and large advantages are realized from comparative accounting and comparative administration.

Such are some of the advantages of consolidation. The grand result is a much lower market price, which accrues to the benefit of the consumers, both at home and abroad, and brings within reach at the cheaper price classes and qualities of goods which would otherwise be unobtainable by them. This is the great ultimate advantage, and if this were not sooner or later true, if the world at large did not ultimately reap the benefit, the other advantages would be as nothing.

The severest test of a business system is in times of adversity. Under the conditions which prevailed before these large aggregations of wealth and intelligence, each manufacturer in times of depression rushed in to secure as much as possible of the reduced volume of business; the result was demoralization. Under industrial combination, however, each concern obtains its fair share of the reduced volume of business at fair prices and the contraction of business is conducted with the orderliness of a retreat of a well disciplined army.

Nothing in the past has more demoralized industries than overproduction in times of prosperity and the scramble for a market in times of adversity, resulting in the cutting of prices to such an extent as to necessitate the reduction of wages and the manufacture of inferior—I might say, counterfeit—goods. Such competition, instead of being the life of trade, is the death of trade, resulting in failures among jobbers, manufacturers and suppliers of raw material, and even affecting that favored class of which there are so many representatives here, the bankers. In the long run, the consumer is unfavorably affected by these conditions—the goods he buys, though apparently cheap, are inferior in quality, and he suffers, as all do, from disorganization.

#### The March of Improvement.

Our host asked me to speak upon industrials from the standpoint of a merchant. I have been speaking

from that of the corporate officer. But as a merchant—and I have been such for a quarter of a century—I have to state that the change from \$200,000,000 excess of imports of manufactured goods in 1891 to \$60,000,000 excess of exports during the past year, being a difference of \$260,000,000 in our favor, has been principally owing to the development of economic manufacture through combination. Over 90 per cent. of our exports of manufactured goods are being produced by such organizations while supplying the domestic demand and to a very large extent manufacturing the implements and machinery, which, in spite of our high wages, have enabled our farmers to take advantage of the world's markets. I say unhesitatingly that the only way in which the United States can extend and hold its position in the world's markets for manufactured goods is by securing the advantages of highly developed special machinery, which is only possible through centralized manufacture and aggregated capital. Subsidy seekers claim that "trade follows the flag;" merchants know that trade follows the price and the flag follows the trade.

The wars of to-day are industrial wars; wealth is secured by production instead of by plunder; diplomats devote most of their time to studying trade conditions for the benefit of their home industries, and the most valuable treaties are those of reciprocity and commerce. We might as well expect to win the industrial battles of to-day by old methods as to expect victory with old types of war vessels, manned by men who, as Joe Jefferson said to me, "Had never had any rehearsals," as against those modern combinations of steel, electricity, powder and dynamite handled by men who had been rehearsed and directed by an Executive Committee of experience with Admiral Dewey as chairman.

Not only are we dependent for our position in the world's markets upon the existence of large industrial corporations, but the wages of the American workman can be sustained only by our keeping in the lead in the development of labor saving machinery through centralized manufacture. He must be placed and held in the position of an overseer. To-day the productive capacity of the labor saving machinery of the United States more than equals that of 400,000,000 of people not using labor saving devices. It requires the intelligence of the American workman to direct these labor saving implements and machines. No other condition would justify the payment of overseer's wages, which the American wage earner is receiving to-day.

Man power, under these conditions, has given place to machine power, and the man, instead of being a machine, a mere hand worker, daily becomes more and more a brain worker and more and more a man. This, more than any other single fact, accounts for the increased prosperity of our people, their larger leisure, larger liberty and larger enjoyment of life. Compare their condition with that which prevailed before the aggregation of wealth and intelligence in the development of industries, when wealth was obtained by conquest, not by production; when the masses had meat but once a week; when their houses were without chimneys and without windows; when their clothing and surroundings were filthy; when the death rate was double what it is to-day—and you go back to a time when the nobility knew less of the world than the laboring man of to-day; when the present necessities of the masses were luxuries only for the rich; and you realize that the emancipation proclamations were written by Watt and Arkwright, Stephenson and Fulton, Franklin and Morse, Bessemer and the great organizers who have applied their discoveries and distributed the benefits of their inventions to the whole world.

By an arrangement recently made the Chicago Pneumatic Tool Company, Monadnock Building, Chicago, will sell the entire output of the National Pneumatic Tool Company, Philadelphia, in connection with the large line of pneumatic tools now handled by the Chicago company. This gives the Chicago Pneumatic Tool Company control of the sales of the Phoenix rotary drills, the new Haeseler piston drills and the appliances manufactured by the National Pneumatic Tool Company, as well as the Boyer riveters, hammers and piston air drills. The arrangement is amicable on both sides, and is for the purpose of reducing selling expenses on both lines of tools.

Manufacturers of wire fence machines and wire fencing held meetings in Chicago on the 24th and 25th inst., for the purpose of raising prices and making arrangements for the advancement of their mutual interests. E. F. Shellabarger of DeKalb, Ill., presided, and E. E. Kilmer of Chicago was secretary.

The Tennessee Coal & By-Product Company, with a capital of \$500,000, have applied to the Secretary of State of Tennessee for a charter of incorporation. The company, it is stated, will do business in Tennessee and Alabama, using the new Keneval coking process.



## Canadian News.

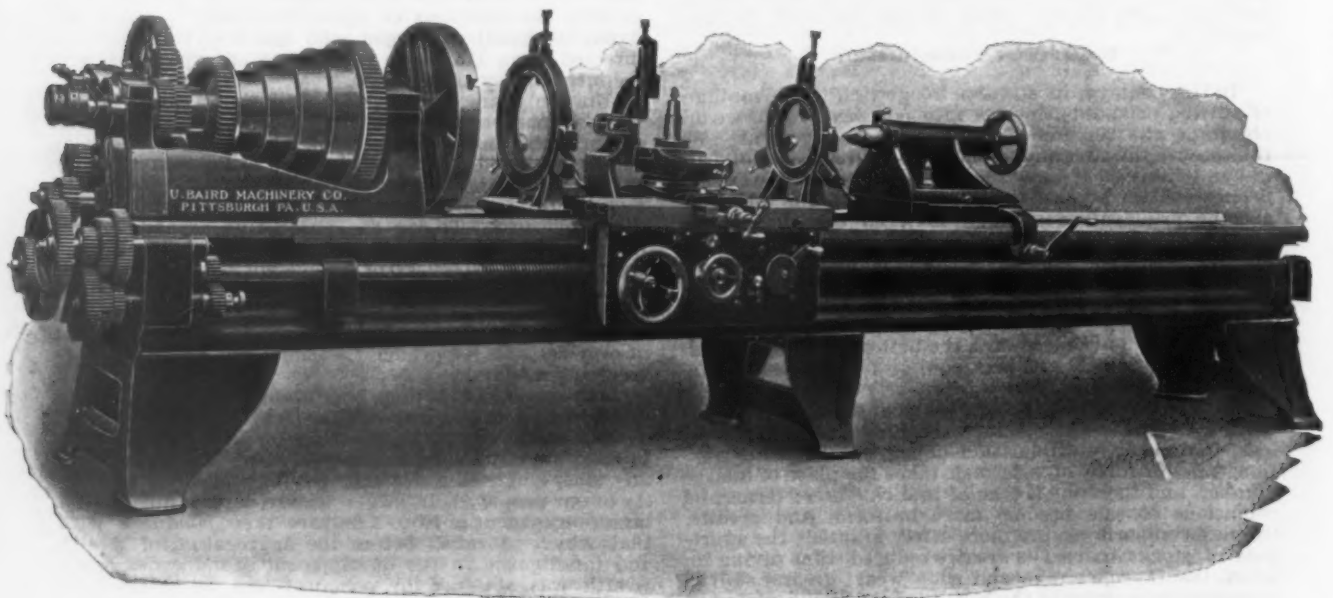
### Dominion Manufactures in Australia.

TORONTO, May 27, 1899.—In his annual report to the Minister of Trade and Commerce, J. S. Larke, the Canadian Government's commercial agent in Australia, communicates some interesting information concerning the Australian market for Canadian manufactures. It is mainly the result of his inquiries as to the chances of a trade being built up by manufacturers of water wheels, steam engines, mining machinery and flour mill machinery. He has induced a number of firms, especially in Sydney, New South Wales, to open up correspondence with manufacturers of such articles in this country. For water wheels he finds, however, but a small market, as the rainfall is so uncertain that most of the streams furnish power but for a small portion of the year. Moreover, there is one manufacturer of them in Victoria. In New Zealand there is a greater demand for them, as in the southern part of that island there are numerous rapid rivers that can be utilized for power purposes. For engines and mill machinery he reports a larger field, especially in New South Wales. Canadian engines and machinery are found to be much like American in design and construction. A few years ago, Mr. Larke says, there was great prejudice against these patterns, the complaint being that they were too weak. In some lines the preju-

act as importing agents. A drawback to the operation of the preference is the want of a Dominion insolvency law. Until such a law is passed British houses will hesitate to push business here. In the past they met with losses on Canadian accounts, losses which they put down to dishonesty, which can only be checked by an insolvency law making the fraudulent disposition of assets a penal offense. Each of the provinces has an insolvency law, but in some cases it affords little protection to creditors, and the fact that the conditions as to insolvents' liability are so variable throughout the Dominion is another reason why British exporters are unwilling to sell here on time. They probably exaggerate the importance of an insolvency law, but rightly or wrongly, they will not venture much here beyond a cash basis until one is passed, no matter how favorable the tariff is.

A Dominion insolvency law, contrary to expectation, will not be enacted this year. After repeated disappointments the business men of Canada looked upon the passage of such an act this session as a foregone conclusion, but Sir Wilfrid Laurier has intimated that it will have no chance. Mr. Fortin has therefore withdrawn the bill which he introduced last session, and had on the order paper for this session a bill similar to the one which was passed by the Senate in one of the sessions of the last Parliament.

The Canadian Government agent at Glasgow says that leading manufacturers in that city credit the preferential



THE BAIRD DOUBLE BACK GEARED ENGINE LATHE.

dice still exists, but for the most part it has passed away, and has been succeeded by quite a marked partiality for American types. Extreme conservatism is the Australian attitude toward new goods. This is due, Mr. Larke considers, to the fact that the colonies are strewn with failures of innovations, all costly. Engines and machinery especially are not likely to be taken up if they vary much from familiar makes. Saw mill plants are in demand, but the caution of the lumberman makes it difficult to sell any but well-known classes of outfit. It will be necessary, in order to work up a considerable trade in any line of machinery, to send out a representative who will stay long enough to see the engine or machine set up and thoroughly tested in many cases. Mr. Larke would recommend, where possible, Australian branches carrying Canadian stocks, similar to the branches already established by many British and American manufacturers. In competition with these American and British stocked warehouses an agent with a catalogue has small chance of success. If federation becomes a fact Mr. Larke is persuaded it will bring a large demand for machinery and tools, especially for engines, iron and wood working machinery. A demand for this class of manufactures would be very active for the first two or three years following federation, one reason being that union would probably bring freer trade.

### Britain and the Preference.

Lord Strathcona, the Canadian High Commissioner in London, reports that the application of the preferential tariff since August 1 exclusively in favor of the United Kingdom and certain colonies has awakened considerable activity among British exporters. Through his office many of them have sought to be placed in communication with importers in Canada, and with persons qualified to

tariff with bringing about a considerable increase in their sales of machinery, iron and steel boilers, &c.

Charles H. Wellman of Cleveland, Ohio, has been in Hamilton to arrange about the building of a steel plant for the Hamilton Steel & Iron Company. It is to have a capacity of 100 tons per day, and is to be completed in six months.

C. A. C. J.

### The Baird Double Back Geared Engine Lathe.

The U. Baird Machinery Company of Pittsburgh have designed a 26-inch double back geared engine lathe intended for heavy and exacting duty. The head is strongly ribbed and the spindle, running in large bronze bearings, is made of crucible cast steel. The cone is of large diameter and has four steps. The back gearing is accurately cut and has a ratio of 18 to 1. The feed works are very heavy, in keeping with the other parts of the lathe. By means of a "pull spline" a triple range of threads and feeds can be obtained without change of gearing. The direction of feed is changed in the apron and a positive locking device prevents more than one feed being engaged at a time. The carriage has long bearings on the ways and is furnished with compound rest. The taper attachment is easy of adjustment, can be used at any desired place on the lathe and any taper up to 4 inches to the foot can be turned. The tail stock has a spindle of large diameter and is easily moved along the bed by means of rack and pinion. The lathe cuts threads from 1 to 32 and feeds from 1 to 64 to the inch.

**Information Wanted**—Who produces machinery for the manufacture of carriage, cart and buggy springs?



### The Susquehanna Iron & Steel Company.

Reference has been made to the consolidation under the title of the Susquehanna Iron & Steel Company of the Columbia Rolling Mill Company, at Columbia, Pa.; the Columbia Iron Company, at Columbia, Pa.; the Susquehanna Iron Company, at Columbia, Pa.; the York Rolling Mills of York, Pa.; the Aurora Furnace, at Wrightsville, Pa. A prospectus has been issued, signed by John Q. Denney of Columbia, Pa., and L. S. Filbert, Kennedy Crossan, Charles A. Porter, James P. McNichol and William C. Martin, of Philadelphia, Pa.

The company are to have a capital of \$3,000,000 divided into 300,000 shares of \$10 par value, of which \$5 per share is to be called. The properties cost \$1,182,500, leaving for expenses of organization and working capital \$317,500. Subscriptions to the stock are being received by Toland Brothers & Co., Philadelphia.

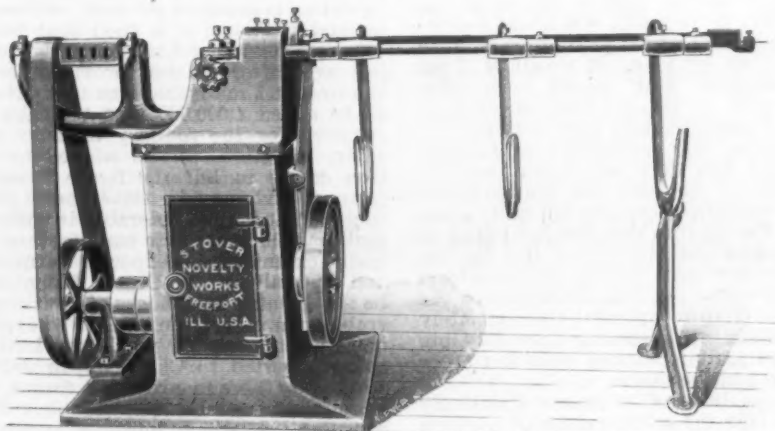
The properties are described in the prospectus. The Columbia Rolling Mill Company, at Columbia, Lancaster County, Pa., contains 7½ acres, with rolling mill having an annual capacity of 20,000 tons of finished grooved skelp and bar iron. The Vesta Furnace, at Watts' Station, Lancaster County, Pa., contains 12 acres, with modern blast furnace having an annual capacity of 25,000 tons of pig iron. The Columbia Iron Company of Columbia, Pa., contains 1½ acres of land, with rolling mill having an annual capacity of 12,000 tons of bar iron. The Susquehanna Iron Company, Columbia, Pa., contains 7 acres of land, with rolling mill having an annual capacity of 10,000 tons of bar iron. The York Rolling Mills of York,

### Automatic Rotary Wire Straightening and Cutting Machine.

The machine herewith illustrated, which has been brought out by the Stover Novelty Works, Freeport, Ill., can be arranged to cut wire accurately to any length up to 24 feet, according to the length of the guide bar which extends out from the machine. This bar is supplied with a groove its entire length, in which an adjustable gauge operates, which trips the cut off at the proper time when the desired length is fed through the machine. After the wire is cut it drops into the forked holders. These holders are under the guide bar, thus preventing the wire from scattering over the floor. Three or four different gauges of wire can be cut with each size of groove in the bar. The machine embodies a new principle. The rollers, instead of being placed one above the other, are laid flat and run side by side, the wire thus running in plain view. The machine is geared up in itself; being supplied with a tight and loose pulley no counter shaft is required. Three sizes are made, which are classed 1, 2 and 3. No. 1 is for wire from 12 to 16, No. 2 for wire from 8 to 11 and No. 3 for wire from 1 to 7.

### Our Coal Production in 1898.

The statistics of the production of coal in the United States during 1898 have just been completed by Edward W. Parker, statistician of the United States Geological



AUTOMATIC ROTARY WIRE STRAIGHTENING AND CUTTING MACHINE.

Pa., contain 7½ acres, with rolling mill having an annual capacity of 10,000 tons of finished sheared skelp and plate iron. The Aurora Furnace property, at Wrightsville, York County, Pa., contains 14 acres, with a blast furnace having an annual capacity of 25,000 tons of pig iron.

These properties have continuously, during the last ten years, earned and paid substantial dividends, averaging over 15½ per cent. per annum on their capital. These properties are located on the Pennsylvania Railroad and the Reading Railroad, and have direct connections with the Western Maryland and Baltimore & Ohio railroads.

The mills and one furnace are in operation and there will be no necessity for extensive renewals or reconstruction. The remaining furnace will be in blast about July 1, 1899. The total cost of bringing the plants up to a condition for their most effective use at this time has been calculated at \$25,000. It is estimated that the net earnings of the Susquehanna Iron & Steel Company during the first year of their operation will exceed \$400,000.

### Mineral Production of Tennessee.

The annual report of the Commissioner of Labor for Tennessee, just issued, for 1898, shows that the total number of coal mines in that State is 76, 15 of which were lying idle last year. The mines produced 3,084,748 tons of coal. The maximum number of men employed during the year was 7820. The amount of coal converted into coke was 736,280 tons. The production of other minerals was as follows: Iron ore, 597,777 tons; pig iron, 363,439 tons; copper ore, 89,721 tons; zinc ore, 454 tons; manganese, 1250 tons, and phosphate, 272,191 tons. All minerals have shown increases over the previous year, those most marked being in coal and iron ore. The increase in coal was 203,754 tons, and in iron ore 69,013 tons.

Survey. The compilation shows that the total production of all kinds of coal in 1898 reached the figure of 219,835,993 short tons, an increase of nearly 10 per cent. over the output of 1897, which amounted in round figures to 200,220,000 tons and was up to that time the largest tonnage ever obtained in the United States.

Great Britain's product in 1898 was 226,287,312 short tons, a slight decrease from 1897. Practically all of the increase in production in the United States was in bituminous coal, the output of anthracite coal in 1898 being 47,515,543 long tons, an increase of only a little over 700,000 tons over 1897. Of this increase 470,000 tons were in the amount of coal consumed at the collieries themselves, so the total increase in the amount of coal actually marketed was only 230,000 tons. There was a decrease in the selling value of anthracite coal of \$3,872,000, while the bituminous product increased in value \$8,910,000.

There were only three States in the Union whose coal product in 1898 was less than that of 1897. These were Illinois, in which production fell off 1,473,459 tons, due entirely to labor troubles, and Montana and Oregon, where the decrease was comparatively unimportant. Among the bituminous coal producing States the largest increase was in Pennsylvania, where 10,557,953 tons were added to the 1897 product, the total amount mined reaching 65,155,844 tons.

West Virginia's product increased 2,437,000 tons, reaching a total of 16,835,719 short tons. Ohio, with a total of 14,476,590 short tons, increased 2,280,000 tons. The next State in importance is Alabama, with a total output of 6,553,000 tons in 1898, an increase of 659,000 short tons. Indiana increased 870,000 tons, reaching a total of a little over 5,000,000 tons. Arkansas showed a 40 per cent. increase.

Statistician Parker thus comments on the showing made:

"The large increase in the production of bituminous coal and the comparative stationary condition of the

anthracite industry calls attention to the increased competition of bituminous coal and its products of gas and coke for domestic consumption with that of anthracite coal. For a number of years the anthracite producers have experienced a great deal of difficulty in keeping the production within the market demands, and this fact, by restricting the product, necessarily increased the cost of mining, and correspondingly necessitated higher selling prices for the coal. Each advance in the selling price of this fuel makes customers for the coke and gas products of bituminous coal.

"The increasing use of mechanical methods of mining bituminous coal has materially reduced the cost of mining, and while the anthracite producers are faced with a continually increasing cost of their own product, they are also obliged to meet a competitor whose cost of production has been steadily decreasing. It appears from the general condition of the anthracite and bituminous coal mining industries that anthracite coal is becoming more and more of a luxury, and it will finally be restricted to markets where the price is merely incidental."

### The World's Consumption of Pig Iron in the Steel Industry.

BY J. S. JEANS, LONDON

The most remarkable feature of the iron trade of to-day is probably the extraordinary increase in the quantity of steel produced relatively to the quantities of iron applied to other purposes. The total quantity of pig iron produced throughout the world in 1898, so far as the figures enable a computation to be made, was about 35,000,000 tons. For the same year the total production of steel of all kinds was about 25,000,000 tons. If we allow 10 per cent. for loss in conversion this would mean that 27,500,000 tons of pig iron, or 78½ per cent. of the total make of the world, was converted into steel, leaving only 7,500,000 tons for conversion into malleable iron, foundry castings, &c. Of course this does not mean that the material available for either purposes was limited to the figures, the fact being that an enormous but quite unascertainable proportion of scrap iron steel has been used up for many different purposes, and more especially for the steel industry—notably the open hearth process—from year to year. But so far as the pig iron production of the world is concerned these figures represent approximately the ratio of its apportionment, assuming that only pig iron was applied to the manufacture of steel and other products of mills, forges and foundries.

Thirty years ago the condition of things was startlingly different. In the year 1868 the world's make of pig iron was about 9,500,000 tons. Of this quantity only about 350,000 tons, or approximately 4 per cent., was applied to the manufacture of steel. Of the remainder the greater bulk was applied to the manufacture of puddled iron, which was then the reigning finished product, and of which the total annual output, so far as can be computed from the figures at command, was about 5,000,000 tons.

If we come down to 20 years ago we find in 1878 that the world's make of pig iron had advanced to rather over 14,500,000 tons, and the total make of steel had increased to about 3,163,000 tons, of which 2,563,000 tons were Bessemer, 320,000 tons were open hearth and 280,000 tons were crucible and other descriptions. These figures would represent a consumption of about 3,479,000 tons of pig iron, assuming that description to be wholly applied to the manufacture, or 24.7 per cent. of the total pig iron output of that year. At this time, however, malleable iron still held its own very strongly, as indeed it did for a number of years afterward. In the United Kingdom the maximum yield of puddled iron was reached in 1882; in the United States the maximum was attained in 1881. In Germany the maximum was not reached until 1889; in other European countries the make of puddled iron continued to advance until a considerably later date.

By the year 1888 the total make of pig iron had reached 24,000,000 tons, and the total make of steel was about 9,754,000 tons, of which 7,812,000 tons were produced by the Bessemer, 1,692,000 tons were produced by the open hearth and 250,000 tons by the crucible and kindred systems. This output of steel, allowing again 10 per cent. for waste in conversion, would call for the consumption of 10,729,000 tons of pig iron, or 44½ per cent. of the total make, assuming it to have been applied exclusively to that purpose.

Since, therefore, the world's steel trade now annually absorbs the equivalent of 78½ per cent. of the world's annual total make of pig iron, it is clear that the progress made in this direction during the last ten years has been phenomenal and entirely without precedent. It is not possible to state the quantity of puddled iron now made throughout the world, because certain countries, the United States and the United Kingdom among them, do not now claim to publish exact statistics of this branch of

the iron industry, and it is probable that no other countries can be much more definite, however they may profess otherwise, because of the almost universal custom in all the leading iron making countries of rolling steel billets alternately with puddled blooms in iron rolling mills. But the total make of puddled iron, so far as the figures can be computed, is not likely to-day to be less than 5,000,000 tons—Great Britain and Germany alone producing 2,250,000—which would call for a further consumption of 5,500,000 tons of iron. This would bring the consumption of iron for steel and malleable iron together up to 32,500,000 tons, or within 2,500,000 tons of the total ascertained pig iron production of 1898.

It is at this stage that the troubles of the problem which we have essayed to try to solve begin to crowd thickly upon our heads. There is no record of the quantities made of other descriptions of iron and steel in their ultimate forms, other than steel and manufactured iron, except for Germany, which in this respect sets an admirable example that other countries could hardly do wrong to follow. According to the German returns the total annual output of foundry castings in that country is about 1,500,000 tons. In other words, about 20 per cent. of all the ultimate products made in that country takes the form of foundry castings. It is probable, although far from certain, that the ratio between foundry castings and other finished products will not be greatly different in other countries. If this is near the mark—and it is certain we cannot, by any amount of conjuring with figures, get much nearer to it—then it would appear that the total tonnage of foundry castings made throughout the world would amount to about 6,000,000 tons, and this would represent a consumption of over 6,500,000 tons of pig iron, again assuming that the waste and loss by oxidation is about 10 per cent., although of course it may be and probably is a good deal under that figure. In other words, to the 2,500,000 tons of our pig iron product left over after we had provided for the requirements of the steel and malleable iron industries, there would need to be added 4,000,000 tons to make up the full quantity required for the foundry industry as a whole. Apparently, therefore this is where the consumption of old iron comes in, but the figure is necessarily purely conjectural, and may be either more or less than 4,000,000 tons. That it is considerable is sufficiently proved by the fact that old iron for re-manufacture figures to a considerable extent in the export returns of certain countries, and especially of the United Kingdom, which appears to be the greatest storehouse of that commodity. A considerable quantity of the old iron so exported does not figure in the returns with which we have just been dealing, being exported to China, Japan and other countries and worked up there in primitive forges, of the operation of which facts are rarely available. To the extent of this consumption, which, however, is relatively unimportant, the quantity of scrap iron annually disposed of is greater than the figure at which we had arrived.

It comes then in the long run to this, that for the requirements of the steel, malleable iron and foundry business of the world the present annual consumption of materials, whether in the form of pig iron or of scrap and similar materials, is close on 40,000,000 tons a year, which is four times as much as the corresponding consumption of 1868, two and three-quarters times as much as the consumption of 1878 and about 50 per cent. more than the consumption of the year 1888. If no scrap iron were available the steel industry alone as we have pointed out, would absorb to-day 78½ per cent. of the total pig iron make of the world. Judging from the history of the immediate past, it is probable that in the future steel will go on absorbing a relatively larger proportion of the world's pig iron output. On the other hand it is equally probable that the finished iron industry will continue to absorb relatively less. From this point of view the outlook is not one that need cause much anxiety. But the "dark horse" of the situation is the scrap iron supply. An enormous supply of scrap must always be furnished by the steel industry itself. Outside of the supply available in the form of crop ends &c., it is probable that the quantities available will continue to increase absolutely if not also relatively. Since the year 1870 more than 200,000,000 tons of iron have been made and put into consumption in all the countries of the world. Of this vast volume how much continues in use? Is it one-third or one-half or what other proportion? It is clear that whatever the true figure may be the available supply of scrap must be enormous both from reconstructions and from disuse of a thousand different structures in which iron and steel are employed. It is probable, moreover, that if the quantities of scrap thus at command could be approximately estimated it would exercise a considerable influence on both the present and the future of the world's iron supplies. For most practical purposes of the steel manufacture scrap iron is just as good as pig iron. The ore, indeed, can readily be made to displace, and does largely displace, the others. As a rule, however, it is considerably more expensive, and for that reason it is not likely to be made use of on a large scale where pig iron is



available. Hence the conclusion that steel manufacturers are not likely to encourage the use of scrap in the majority of ordinary cases.

There is another important raw material of the steel industry the supply of which is causing considerable anxiety in Europe. In all countries where basic steel is manufactured on a scale of importance the last few years have developed a large demand for puddler's top, which furnishes the essentials in which the pig iron ordinarily used is more or less deficient pure and simple. This material was originally disposed of in the early days—not yet remote—of the basic process, for the trouble of carrying it off. By and by it was paid for as a commodity of value, rising from 2 shillings 6 pence to 5, to 10, to 15 and to 20 shillings per ton. In Great Britain and Germany the supply is now getting somewhat scarce. In the United States, where the basic process is as yet in its infancy, this stage is not likely to be reached for a considerable time to come and to this extent the basic steel manufacturers of the United States are likely to have a substantial advantage over their European rivals so long as the advantage lasts.

### The American Car & Foundry Company.

The Governing Committee of the Stock Exchange has voted to admit to the list \$29,000,000 preferred and \$29,000,000 common stock of the American Car & Foundry Company. The formal application to secure listing gives considerable detailed information about the company, which is of general interest. The company are capitalized at \$60,000,000, equally divided into 7 per cent. non-cumulative preferred stock and common stock. Of this all but \$910,000 of each class has been issued. The company were incorporated under New Jersey laws on February 20, 1899. The plants required are stated as follows: Michigan Peninsular Car Company, Detroit, Mich.; Missouri Car & Foundry Company, St. Louis, Mo.; Jackson & Woodin Mfg. Company, Berwick, Pa.; Ohio Falls Car Mfg. Company, Jeffersonville, Ind.; Union Car Company, Depew, N. Y.; St. Charles Company, St. Charles, Mo.; the Wells & French Company, Chicago, Ill.; Terre Haute Car & Mfg. Company, Terre Haute, Ind.; Buffalo Car Mfg. Company, Buffalo, N. Y.; Niagara Car Wheel Company, Buffalo, N. Y.; Ensign Mfg. Company, Huntington, W. Va.; Pennoc Brothers, Minerva, Ohio; Murray, Dougal & Co., Milton, Pa.

A detailed description of the plants is also submitted.

The application continues: "It is intended that annual reports shall be made which shall set forth the financial condition of the company. The plants named in our report are owned in fee and free from lien and incumbrance, with the exception of two. In regard to these the following are the facts: The Michigan Peninsular Car Company made a deed of trust for \$2,000,000 to secure 5 per cent. bonds to that amount. Of these bonds \$1,796,000 have been paid; \$214,000 in amount of these bonds are now outstanding. Under the terms of the deed of trust the payment of the principal of these last named bonds has become due. They have been called and the money to pay and retire these bonds has been deposited with the Guaranty Trust Company of New York. A copy of the certificate of this company is hereto annexed and made part hereof, and the original will be produced on demand. The Ohio Falls Car Mfg. Company issued 6 per cent. bonds to the amount of \$600,000. Of this amount \$585,000 has been paid, leaving \$15,000 in bonds still outstanding. The deposit of \$16,200 to redeem these outstanding bonds has been made with the Central Trust Company of New York. A copy of their certificate in regard to the Ohio Falls Car Mfg. Company is hereto annexed and the original will be produced on demand.

#### Balance Sheet on Commencement of Business, March 1, 1899.

<b>Assets—</b>	
Property account.....	\$52,822,097.13
Consisting of the real and personal property of the former owners of the properties above mentioned, including all appliances for the successful operation of the shops; also their patents and goodwill.	
Unissued preferred capital stock.....	910,000.00
Unissued common capital stock.....	910,000.00
Materials on hand to enter into the construction of cars for which orders have been received, but not built on March 1.....	5,292,720.76
Cash.....	240,182.11
<b>Total.....</b>	<b>\$60,175,000.00</b>
<b>Liabilities—</b>	
Preferred capital stock.....	\$30,000,000.00
Common capital stock.....	30,000,000.00
<b>Accounts payable—</b>	
Due on Milton plant, payable in instalments covering period of 12 months, if desired.....	175,000.00
<b>Total.....</b>	<b>\$60,175,000.00</b>

"Four of the above mentioned companies during the past year have made net earnings of not less than \$2,100,000, and the balance of the companies, with the exception of the Minerva, which was not in operation, have all made a profit during the past year in aggregate not less than \$800,000.

"This company are not able to furnish a report showing the results of their business for a period of two consecutive years, by reason of the fact that the company were only recently organized, their fiscal year commencing, as hereinbefore stated, March 1 of this year.

"The officers of the company are: William McMillan, chairman of the board and treasurer, St. Louis, Mo.; W. K. Bixby, president, St. Louis, Mo.; Frederick H. Eaton, first vice-president, New York; W. P. Coleman, second vice president, New York; Anthony Gref, secretary, New York; Marc W. Comstock, assistant secretary, St. Louis, Mo.; W. J. McBride, auditor, St. Louis, Mo.; J. M. Buick, assistant auditor, St. Louis, Mo.; E. R. Hoadley, first assistant treasurer, St. Louis, Mo.; William M. Hager, second assistant treasurer, New York.

"The directors of the company are: William McMillan, St. Louis, Mo.; W. K. Bixby, St. Louis, Mo.; Frederick H. Eaton, New York; George Coppel, New York; George Hargreaves, Detroit, Mich.; F. E. Canda, Huntington, W. Va.; C. W. Meysenburg, Chicago, Ill.; J. L. Smysler, Jeffersonville, Ind.; Chester Griswold, New York; J. J. Albright, Buffalo, N. Y.; Lewis J. Cox, Terre Haute, Ind.; Charles T. Schoen, Pittsburgh, Pa.; E. N. Dickerson, New York; H. B. Denker, St. Charles, Mo.; Anthony Gref, South Orange, N. J.

"The registrar of the company is the Central Trust Company of New York. The transfer agent of the company is the Guaranty Trust Company of New York."

### THE WEEK.

The question of liability for an accident caused by defective machinery was recently decided by the Supreme Court of Indiana in the case of the McFarlan Carriage Company vs. Potter. The court held that where a workman using tools or machinery of a complex character notifies his employer of a defect therein, and the employer requests and induces him to continue their use by a promise to repair such defect, from which no immediate danger would be anticipated by a reasonably prudent person, it is the master and not the servant who will be held to have assumed the risk of an injury to such servant by his careless use of the defective instrumentality until the lapse of a reasonable time in which to make the repairs, and that this rule is not changed nor affected by the fact that the promise does not contemplate the immediate repair of certain work then being done.

The Navy Department has under construction an addition to the big gun shop at the Washington Navy Yard. The new building is 300 feet long, making the main shop 900 feet in length. The new addition will contain the whole of the breech mechanism department, which has been heretofore housed in a separate shop. The steam crane railway will be extended so as to cover the new shop. All departments of the gun shop thus will be brought under one roof.

The International Miners' Congress, in session this week in Brussels, Belgium, voted by a large majority in favor of the enforcement of a legal eight-hour working day. The English delegates were the only dissentients.

It is announced that as soon as the Legislature of Texas adjourns Governor Sayers of that State will send out a letter to the Governors of all the States inviting them and their attorneys-general to a conference for the purpose of agreeing upon an effective anti-trust law.

A 3,000,000-bushel grain elevator is to be built at once by the New York Central Railroad Company at the old West Shore terminal, at Weehawken, N. J.

The radical rise in the price of iron and copper is becoming a serious matter to the British shipbuilding industry. According to the *Syren and Shipbuilding* some of the English and Scotch builders will find themselves on the wrong side of their books on many of their contracts, which is all the rougher after the heavy losses caused by the recent engineers' strike.

Three workmen were killed and three were seriously injured in an explosion at the Cambria blast furnaces, at Johnstown, Pa., last week. The men were on the roof of a building near the furnace, and received a shower of molten iron.

It is stated that the negotiations looking to the uniting of the William Cramp & Sons Ship & Engine Building Company of Philadelphia with the English ship, engine and gun building firm of Vickers' Sons & Maxim are at present suspended. Nothing definite is yet decided upon in the matter.

A substantial company have been organized in Rome, Italy, with a capital of \$1,000,000, to acquire, carry on and extend the iron and steel works of Filippo Tassara & Sons, at Valtri. The new company, who will be known as the Ferriere di Valtri, will make a number of important improvements, involving considerable purchases of new machinery, tools, &c.



# The Iron Age.

New York, Thursday, June 1, 1899.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

## Reforms in the Western Bar Iron Trade.

The consolidation of the great majority of the Western bar mills under one ownership promises to accomplish important results in other respects than the establishment of a profitable base price. Allusion has frequently been made in these columns to loose and apparently unbusinesslike practices which had become fastened on the trade through unrestrained competition for business. All kinds of concessions were given to large consumers whose orders were at all desirable. Trade usages were departed from, one after another, under the pressure of necessity to capture contracts, until it latterly seemed likely that mill owners were destined to find themselves in a position of willing compliance with any terms their customers saw fit to make.

When the consolidation of the mills was projected, the feasibility of maintaining a fair base price was acknowledged by all interested either as producers or consumers, but few perceived the advantageous position in which the mill owners would be placed with respect to instituting reforms in methods of selling.

Announcement has been quietly made in the past week that some radical changes are immediately to be put in effect. The most important of these are the abolition of elastic contracts, the strict adherence to the national card of bar iron extras, and the shortening of terms to net cash in thirty days. Elastic contracts have long been an annoyance to mill owners, but not until now has the opportunity presented itself to change the practice of making them. In giving a buyer 10 per cent. leeway on a contract for bar iron, the seller granted him an option which was pretty sure to be taken up if prices advanced, while the minimum quantity was often cut down if prices receded. Conditions were so lax that buyers felt no compunction in supplying themselves at lower prices whenever they could, forcing those with whom they had contracts to beg for specifications unavailingly. The buyer had the seller in a tight grip and made the most of his position of advantage. Honorable men were of course found among buyers, who lived up to the strictest terms of their contracts, but too many have been ready to evade them and for the benefit of these it has been determined to discontinue giving options.

The strict maintenance of the card of extras is a more difficult matter to regulate, as steel mills have done a great deal in eliminating charges for extras and making flat prices. Perhaps they may also be ready to turn over a new leaf and if the bar iron makers take a firm stand on this point they will fall in line. Costs are always higher for rolling anything not of standard sizes, and the mills are losers when they make flat prices. The practice of throwing off charges for extras is a concession due to hard times and lack of sufficient business to keep all the mills employed, and as these conditions have changed the opportunity is deemed auspicious for a discontinuance of the concession.

Cutting to exact lengths is something for which a charge is properly due to a mill, and if it is rigidly adhered to an important point will further be gained.

The abundance of money should enable payment to be easily made within 30 days from the receipt of an invoice. All costs are now so much higher than they have been that considerably more capital is needed to operate a mill. The shortening of terms has long been desired by bar iron makers and if put in effect now will work no hardship. The reform thus established can probably be made effective even in depressed times if it becomes a recognized trade practice.

Should the bar iron mills be able to carry these reforms into effect, encouragement will be given to makers of other iron and steel products to change lax methods which have also crept into their systems of doing business. The bar mills are not the only sufferers from departures from legitimate charges and terms. Concessions have been made in all lines in order to influence trade.

## Making a Club of the Tariff.

The suggestion meets with much favor in certain circles that the way to "smash the trusts" is by putting on the free list all products competing with those manufactured by the industrial consolidations. Numerous influential newspapers have taken up this view of the matter and given it their indorsement. They have evidently not considered the question very thoroughly or the futility would easily be seen of such a procedure. Assuming, for the sake of argument, that tariff duties afford protection to some of the consolidations, enabling them to charge domestic consumers higher prices than with free foreign competition, what would be the effect of abolishing such duties? The consolidations would not go out of business simply because prices would then be reduced. They would endeavor to cut down their costs to meet such conditions. Those from whom they purchase raw material would have to furnish such raw material cheaper, and the wages of their own workmen and of those producing their raw material would be cut down. Profits might be reduced, but the greater part of the reduction in price and in costs would come squarely out of the earnings of labor. No "smashing of the trusts" would take place, as they are too strong financially to be driven out of business. Such independent domestic competition as they now have would be equally affected with themselves, and would also have to reduce costs in the same way. The workman now employed in these industries would be the chief sufferer.

The next prominent sufferer would be the Treasury of the United States, if any considerable revenue had been derived from such tariff duties. The consolidations, however, would continue to do business, and those nearest to monopolies in their control of trade in their line might possibly make as much money as they are now doing.

The fact obtains, however, that free foreign competition is not seriously feared by many of the great consolidations, especially those in the iron and steel trades. The constituent companies in these consolidations have held their own in the past couple of years in the markets of the world, and confidently expect to take a much larger share of such business in the future. It is much better for them to be able to dispose of their entire product at home and their managers doubtless hope that such conditions as now exist

may long continue. But when the change comes and a surplus product must be marketed it will be forced into foreign channels at prices which will make the merchandise move in that direction. The great capital at the control of these industrial giants will give them a power in that event which is even now regarded with apprehension by the foreign manufacturers who are expected to "smash the trusts" as soon as the tariff bars are let down. Those who think a club for this purpose can be made of the tariff should think twice.

### The Farm Implement Trade.

An important element in the iron and steel business is the farm implement trade. We have seen times in the recent past when the dullness in other lines was so pronounced that the purchases by the manufacturers of farm machinery assumed extraordinary prominence. Their consumption of iron and steel steadily increased whether general trade conditions were good or bad, but in the past twelve months greater quantities have been purchased by the various implement manufacturers than ever before. The improvement in general business has, however, been so pronounced that the implement trade has lost some of its prominence by comparison. It would be a serious matter, nevertheless, especially to Western iron and steel manufacturers, if the heavy consumption by the makers of farm machinery should be seriously checked. Some apprehension has been created on this account by the great appreciation in prices of iron and steel. Farmers have been so accustomed to the gradual cheapening of the price of implements that they may be deterred from adding to their stock when they find a sharp advance asked by dealers. No check in this trade has so far been felt because the manufacturers have enjoyed cheap stocks of raw material and therefore were able to sell at old prices. The time is now at hand when they must place contracts for materials for their next season's output, and the new conditions in the iron trade must be met by implement manufacturers and their customers.\* The effect of higher prices is therefore fast becoming an absorbing topic in this trade, which is likewise deeply interesting to iron and steel producers.

The question has been discussed at some length in a recent issue of the *Chicago Farm Implement News*, which is a recognized authority in its field. After showing the necessity of higher prices on finished goods by reason of the great advances made in cost of raw material, particularly of iron and steel, that journal says: "Manufacturers, as a rule, deplore the conditions that force them to advance prices at a time when the grain markets are depressed." The conservatism of these manufacturers is set forth and their hope that a downward movement in the costs of raw materials may soon be recorded. No prospects of such a change are held out, the editor evidently being too conversant with the causes of the strength in the iron market to take such a stand. He sums up the situation as to the future of the implement trade as follows:

A reduction in the volume of sale is anticipated by some of the manufacturers as well as by dealers who have expressed their views, but the feeling is not general, at least not universal. The advanced prices are not as high as those that prevailed seven years ago, when farm products were quite as low as they are now. The mere fact that there has been an advance in the price of an implement may cause some farmers to put up with the old one a while longer, but this feeling will not prevail to any great extent when it is remembered that the prices are legitimate and not inflated. If the advances were due to com-

binations of implement manufacturers the situation would present an entirely different face. The increased cost is not burdensome to farmers individually.

Such a conclusion is quite reassuring to iron and steel interests. It is to be hoped that it may be found absolutely correct.

### OBITUARY.

\* ANDREW J. KAUFFMAN.

Andrew J. Kauffman, formerly president of the Columbia Iron Company and a prominent business man, died on May 19, at Columbia, Pa., aged 59 years. He was born in Lancaster County, Pa.

JAMES P. CRAWFORD.

We referred briefly in this column recently to the passing away of James Pollock Crawford, who died on May 12 at the Plaza Hotel, New York City. Mr. Crawford was born in New Castle, Pa., on March 6, 1855, and has for many years been actively engaged in various branches of the iron trade. He was an officer and director in a great many interests, and was president of the Terre Haute Iron & Steel Company and secretary and treasurer of the Wabash Iron Company, both of Terre Haute, Ind. In the death of J. P. Crawford the iron trade loses one of its brightest and most progressive members, the business world a man of the most sterling worth and rectitude of purpose. It does not often fall to the lot of any man to form in a short business life as many warm and lasting friendships or to achieve as enviable a reputation among his associates as fell to him. Every one with whom he came in contact, from his largest customer to his humblest employee, instinctively acknowledged his sincerity and honesty of purpose, and felt it a privilege to call him "friend." During his years of bodily suffering the same even temper, the same charity for the shortcomings of others, remained with him until the end. Devoted to his family, loyal to his friends, of irreproachable integrity, conscientious to a fault, considerate of all.

### PERSONAL.

T. B. Mellon of Pittsburgh has succeeded the late Alfred E. Hunt as president of the Pittsburgh Reduction Company, at New Kensington, Pa.

E. A. Uehling of the Uehling casting machine of Pittsburgh has sailed for Europe. He will be connected with the Uehling Company, Limited, of England, and will make his headquarters at Middlesborough, England.

Owing to the continued illness of P. S. Cochran, president of the Washington Coal & Coke Company, at a board meeting held at their office, at Dawson, Pa., on May 20, the office of vice-president was created, and J. R. Laughrey, formerly treasurer, was elected to fill the position. The offices of secretary and treasurer were combined, and John H. Wurtz was elected to fill both positions.

C. I. Rader, formerly manager of the furnaces of Pickands, Mather & Co., at Sharpville and West Middlesex, Pa., has been appointed general manager of all the blast furnaces of the Republic Iron & Steel Company. His headquarters will be in Youngstown.

Geo. A. Baird, formerly of the Sharon Iron Company, Limited, at Sharon, Pa., has been made general sales agent of the Republic Iron & Steel Company, with headquarters in Chicago.

Charles L. Bell of Bell Brothers, Middlesborough, England, returned home last week.

W. C. Cronmeyer, formerly president of the United States Iron & Tin Plate Mfg. Company at Demmler, Pa., and now a special agent of the American Tin Plate Company, delivered last week a lecture on "The Tin Plate Industry" before the German Engineers' Society at Pittsburgh, Pa.

J. C. Searight of New Castle, Pa., has been appointed superintendent of Thomas Furnace of the National Steel Company, at Niles, Ohio.

Stanley G. Flagg, Jr., of Stanley G. Flagg & Co., Philadelphia, has sailed for a business trip abroad.

Robert Klein of Dahlbruch b. Siegen, Germany, and L. Guzowski of the Zaporozje-Kamenskole Steel Works, near Ekaterinoslaw, Russia, have returned home.

Werner Meyer of Rheinische Stahlwerke, Melderich, b. Ruhrort, Germany, is now in this country.

W. H. Hassinger of Birmingham, Ala., has been appointed Southern district manager of the Republic Iron



& Steel Company. Mr. Hassinger was formerly general manager of the Alabama Rolling Mill Company.

James C. Thompson, for several years superintendent of the Carrie furnaces at Rankin, Pa., has been engaged as general manager of the furnaces of the Reading Iron Company, at Reading, Pa.

Henry Phipps of the Carnegie Steel Company has sailed for Europe to-day, and it is probable that Henry C. Frick will go abroad next week.

## The Tube Consolidation.

### Organization of the National Tube Company.

The following official statement has been given out with reference to the tube consolidation, upon which work has been proceeding for so long a time:

The consolidation of the tube and pipe manufacturers, which has been under the management of William Nelson Cromwell and Edmund C. Converse, consolidation purchasers, has been consummated at a full convention of all the leading tube manufacturers of the country. The new company will be known as the National Tube Company and will be capitalized at \$80,000,000, divided as follows: Seven per cent. cumulative preferred stock, \$40,000,000; common stock, \$40,000,000. The quick assets, including cash, will be over \$14,000,000.

### The Companies Consolidated.

A charter was taken out some months ago under New Jersey laws under the name of the United States Tube Company, for which that of National Tube Company will now be substituted.

The new company will include thirteen companies, as follows:

National Tube Works Company, McKeesport, Pa.  
Riverside Iron Works, Wheeling, W. Va.  
Pennsylvania Tube Company, Pittsburgh.  
American Tube & Iron Company, Middletown, Pa., and Youngstown, Ohio.  
National Galvanizing Company.  
Chester Tube & Iron Company, South Chester, Pa.  
Oil City Tube Company, Oil City, Pa.  
Cohoes Tube Works, Cohoes, N. Y.  
Syracuse Tube Company, Syracuse, N. Y.  
Allison Mfg. Company (Tube Mill), Philadelphia, Pa.  
Morris Tasker & Co. (Delaware Iron Company), New Castle, Del.  
Ohio Tube Company, Warren, Ohio.  
Oil Well Supply Company (Continental Tube Works), Pittsburgh, Pa.

### The Organization.

The organization of the company was completed by the election of the following directors and officers:

Directors: Joshua Rhodes, J. J. Vandergrift, William B. Rhodes, F. J. Hearne, J. N. Vance, John Eaton, Francis L. Potts, F. R. Tobey, Jonathan Rowland, Daniel O'Day, A. S. Matheson, O. C. Barber, Henry Aird, John Don, Edmund C. Converse, Horace Crosby, Wm. Nelson Cromwell, D. W. Hitchcock, A. F. Luke, W. J. Curtis.

Officers: President, Edmund C. Converse.

Chairman of the Board, Joshua Rhodes.

First Vice-President (in charge of manufacturing), F. J. Hearne.

Second Vice-President (in charge of mercantile affairs), Horace Crosby.

Third Vice-President, Francis L. Potts.

General Manager (manufacturing department), A. S. Matheson.

Treasurer, New York (A. F. Luke of Boston is being urged to accept this place, and he has the matter under consideration).

Assistant Treasurer (Pittsburgh), Wm. H. Latshaw.

General counsel, Sullivan & Cromwell.

The consolidation has attracted especial interest from the exhaustive manner in which the examinations have been conducted and the basis upon which the properties have been acquired. The bankers, J. P. Morgan & Co., made it a condition of the bankers' syndicate that the properties should be acquired upon a basis approved by them and which would stand the test of the examination of Jones, Caesar & Co., chartered accountants, and the mechanical and construction experts, Julian Kennedy and Robert Forsyth.

We understand that the subscribers have been bound to withhold from sales of securities until the banking syndicate have disposed of their holdings, or that they may place their securities in the hands of J. P. Morgan & Co., as trustees.

### The Charter.

The charter under which the National Tube Company will operate is that originally granted on February 17,

1899, to the United States Tube Company. The following article deals with the powers of the Board of Directors:

"The Board of Directors shall have power to make, amend and repeal the by-laws of the corporation; to authorize and cause to be executed mortgages and liens upon the real and personal property of the corporation, and to sell and transfer any or all of its assets to any corporation of this or any other State, and in payment therefor to accept and receive, in whole or in part, cash or capital stock or bonds of such other corporation, and from time to time to sell, assign, transfer or otherwise dispose of any of the property of the corporation; provided that no mortgage lien upon any real property of the company shall be created, nor shall any of its assets be sold or transferred, without the previous consent of the holders of at least 80 per centum in amount of each class of its stock then outstanding.

"The corporation may use and apply its surplus earnings or accumulated profits, authorized to be reserved as a working capital, after the payment of all cumulative dividends on the preferred stock and a dividend of seven per centum for each and every fiscal year on the common stock, to the purchase or acquisition of property, and to the purchase or acquisition of its own capital stock, from time to time, to such extent and in such manner and upon such terms as its Board of Directors shall determine; and neither the property nor the capital stock so purchased and acquired, nor any of its capital stock taken in payment or satisfaction of any debt due to the corporation, shall be regarded as profits for the purposes of declaration or payment of dividends, unless otherwise determined by a majority of the Board of Directors, or a majority in interest of all the stockholders.

"The Board of Directors, by resolution adopted by a majority of the whole board, may designate five or more directors to constitute an Executive Committee, which committee, to the extent provided in said resolution or in the by-laws of the corporation, shall have, and may exercise, all of the delegable powers of the Board of Directors in the management of the business and affairs of the corporation."

### The Outside Mills.

The following mills are not included in the consolidation, which therefore is not, nor does it claim to be, a monopoly:

Cumberland Nail & Iron Company, Bridgeton, N. J.  
Albright's Son & Co., Allentown, Pa.  
A. M. Byers & Co., Incorporated, Pittsburgh.  
Longmead Iron Company, Conshohocken, Pa.  
Spang, Chalfant & Co., Pittsburgh, Pa.  
Reading Iron Company, Reading, Pa.  
Tyler Tube & Pipe Company, Washington, Pa.  
Crane Company, Chicago, Ill.  
Western Tube Company, Kewanee, Ill.

Since the capacity of this latest addition to the great consolidations is about 1,000,000 tons of tubular goods per annum, its relation to the raw materials, at different stages of manufacture, is of much interest to the trade. Two of the constituent concerns own and control blast furnaces, the National Tube Works Company having two at McKeesport with an output of about 20,000 tons per annum, and the Riverside Iron Works two, one at Wheeling, W. Va., and one at Steubenville, Ohio, together making about 10,000 tons. Aside from an interest in the Mahoning mine on the Mesaba range held by the National Tube Works Company, none of the concerns own ore property. We understand, however, that arrangements for an ore and coke supply for a long series of years have been recently completed.

Since the two steel plants of the new consolidation at McKeesport and at Wheeling are capable of producing about 1200 tons of steel billets per day, while the furnaces are capable of making about 1000 tons per day, a certain amount of pig must be taken from the open market.

Neither the Cohoes, Syracuse, Allison, American, Chester, Oil City, Pennsylvania or Ohio plants have rolling mills, so that the new consolidation will buy largely of skelp in the open market to supply their works with material.

In recent years some of the constituent companies have developed a very large export business. Since the Government statistics appear to mix up cast iron and steel pipe it is impossible to ascertain the magnitude of this movement.

Attorney-General Monnet of Ohio is about to institute proceedings to test the right of New Jersey and West Virginia corporations to do business in Ohio. He expresses himself as of the opinion that alien corporations are not only operating in violation of the laws of Ohio, but in contravention of the Constitution of the State, and he believes that suits against such corporations can be carried to a successful issue.



### The Trans-Siberian Railway.

The Imperial Commission charged with constructing the Trans-Siberian Railway held its thirty-second meeting on February 8. We take the following details, says the *Esquirer*, concerning the state of the work on January 13 from the official report, which was then laid before the Commission.

The various branches of work in constructing the second portion of the Central Siberian Railway are fully completed, with the exception of finishing the upper work on the bridge across the Yenissel, and some unimportant work is also in arrears. However, regular communication was opened from January 13 on the whole extent of this portion of the line, and the line itself was then incorporated into the general railway system.

On the Trans-Baikal line 7535 acres of forest land have been cleared of timber, and 1333 acres were cleared of the roots of the trees. Earthworks were carried out to the extent of 2,465,450 cubic fathoms, and 69,020 square fathoms and 55,932 cubic fathoms of railway embankment were strengthened; 27 stone conduits and 7178 yards of wooden bridges are in part completed, and the rest are now being built; 13 caissons have been sunk, and 14,535 cubic fathoms of stone masonry for the five large bridges have been carried out. The track is laid for 200 miles; 21,300 cubic fathoms of ballast have been used; 1,234,000 railway sleepers have been prepared, and 55 per cent. of the rails and 62 per cent. of the fastenings are ready for use along the projected line. The telegraph line is completed from Irkutsk as far as Sretensk via Myssovoje. Already built and in course of construction are 221 road side stations, as also several passenger stations, 675 square fathoms of platforms, workshops, dwelling houses and outbuildings, 66 locomotive sheds, 58 reservoirs and pumping stations, and 40 wells; 28 locomotives and 531 wagons, some of which are new and some have been repaired, now carry on a temporary communication between Nertschinsk and Sretensk.

On the section of line between Irkutsk and Lake Baikal the greater part of the work and 50 per cent. of the ballasting have been carried out, and the line has been opened temporarily, although there are some arrears of work to be made good.

The section of the line from Kaidolovo to the Chinese frontier has been surveyed; 10,000 beams of timber have been conveyed thither, and 18,000 cubic fathoms of earthworks have been executed, while steps have been taken to construct the necessary buildings. The Russian fathom, or "sagen," contains 7 English feet; the "pood" contains 36.08 pound avoirdupois.

On the section between Nikolskoye and the Chinese frontier the rails have been laid, and a temporary train service has been opened throughout the whole section as far as the Chinese frontier.

On the line between Perm and Kotlas the various works connected with the construction of an embankment, the necessary railway buildings, and the water supply, are now completed. With the exception of the roadway of the bridge across the river Kama, the other bridges are ready for use, and the whole of the track has been laid; 530 miles of the permanent way have been ballasted, and 70 locomotives and 882 wagons are now working. Communication has been opened for the present between the Kama and Viatka in the western region of East Russia.

The work of establishing a steam ferry across Lake Baikal is in full progress, two-thirds of the hull of the ice breaker have been put together, 40 per cent. of the riveting has been done, and 12 per cent. of the wood work is in readiness to be used; 35,590 cubic fathoms of ballast have been removed, and piers and landing places are being constructed.

The building of the stone quay at Vladivostock is now completed; its construction entailed 18,857 cubic fathoms of earthworks and 1718 cubic fathoms of masonry.

In order to improve navigation on the Shilka, Amur and Ussuri rivers, 26 navigation stations and 22 stations for marking the depth of the water have been established; the course of the proper channel in each river has been marked by buoys; long boats and messengers are in readiness to give advice and assistance, and charts and maps of these rivers have been drawn up.

While the navigation is open on the Amur River, the steamers belonging to the Government convey the goods of private persons, as also the building material for the railway. A winter harbor has been constructed at Blagoveshchenck, in which the steamers will be berthed during the winter.

With regard to the cost of constructing the Great Siberian Railway, the report presented by the Ministries of Communications and Imperial Exchequer shows that up to the present time the sum of 289,205,992 roubles, 7 kopecks, or £30,766,595, has been assigned, and that of this amount 257,188,994 roubles, 47 kopecks, or £27,360,319, have been actually paid away up to January 13,

1898. This original estimate included the cost of constructing the main line and branch lines of the Trans-Siberian Railway, the establishment of the steam ferry across Lake Baikal, the building of the harbor at Vladivostock, the improvement of the conditions of the steamship navigation upon the above mentioned rivers, and the organization of the steamship service upon them.

During 1898 more than 695 miles of railway lines were laid, and this work was distributed as follows:

	Miles.
On the Central Siberian Line.....	241½
On the Section Irkutsk to Lake Baikal.....	43
On the Trans-Baikal Line.....	130
On the Ussuri Line as far as the East-China Line.....	73½
On the Line between Perm and Kotlas.....	211

At the present moment four-fifths of all the railway lines actually in course of construction in Russia have been completed. The rails on the western section of the Siberian Railway were laid, on an average, at the rate of 327 miles during every summer that the work could be carried on from 1892 to 1898, inclusive. If, however, the unusual climatic conditions are taken into account in considering the successful result of the work of constructing the Trans-Siberian Railway in comparison with the construction of other Russian and foreign railways, it will be seen that the whole of the before mentioned Siberian line was built in six years, and that the rails were laid at the rate of 380 miles a year.

The progress of the work on the various sections of the Siberian Railway was as follows: The Western Siberian Line was laid at the rate of 296 miles a year in four years, and the Central Siberian Line at the rate of 228 miles a year in five years; the line from Kinnel to Cheliabinsk was laid at the rate of 87 miles, the Ural Railway at the rate of 78 miles, and the Trans-Caspian Railway at the rate of 293½ miles a year. From these returns it will be seen that the rate of progress in constructing the Siberian Railway was greater than that of the work on other Russian railways. In referring to the construction of foreign railways, the first place must be given to the rapid construction of the Canadian Railway. This line has a total length of 2920 miles, and was built in ten years, so that the rails were laid at a yearly average rate of 292 miles. Thus, from the point of view of rapid construction, the Canadian Railway has been surpassed by the Siberian Railway. It must not be forgotten that the Canadian Railway had to make 40 tunnels and five large bridges; on the other hand, the Siberian Railway crosses 17 great rivers, and the total length of the various bridges amounts to 17 miles, which includes 2-3 miles of bridges built upon caissons.

The session of the Imperial Commission was also occupied in considering the question of a vote of credit for providing warehouses and facilities for unloading cargoes at the new stone quay at Vladivostock. The sum of 1,327,000 roubles had been granted for the construction of this stone quay, and the work has now been completed. Warehouses, lines of rails for goods wagons, and the usual equipment of wharves have still to be supplied. For this purpose the Minister of Communications has asked for a special credit vote of 730,000 roubles. The buildings to be erected on the quay are estimated to be sufficient for a yearly turnover of 10,000,000 poods, or 50,000 poods for every fathom of the quay. About half of the ground at the harbor will still remain to be built upon as the need for extension of the accommodation arises. Thus, with the development of the port of Vladivostock, the yearly volume of the trade can amount to 20,000,000 poods. The request of the Minister of Communications was granted unanimously, and the Czar confirmed the grant of 730,000 roubles to be expended in properly developing the commercial harbor at Vladivostock, and on February 23 His Majesty signed the report in the Journal of the Commission.

### Armor Plate Bids.

(By Telegraph.)

WASHINGTON, D. C., May 31, 1899.—Armor plate bids were opened at noon to-day. Carnegie and Bethlehem companies decline to bid on Krupp armor at the limit fixed by Congress, but offer Harvey armor at \$400. Burnstine Brothers, San Francisco, offer to deliver 24,000 tons to meet Krupp test at \$450, delivery to begin in five years. Navy Department has not yet outlined any policy to meet the situation. Several officials favor use of Harvey armor on the four monitors and three battle ships authorized last year, for which Congress provided armor at \$400.

Taking effect Thursday, June 1, the Cahall Sales Department, Pittsburgh, announce an advance of 10 per cent. in prices of Cahall boilers.

## A Few Facts on the Subject of Molding Machines.\*

BY A. C. MOTT.

Your president has requested that I should read a paper on the subject of molding machines and their adaptability to the stove trade. Now this can in no wise be called an address, but is simply a compilation of a few facts in regard to molding machines presented for your consideration.

In the first place,

### What Are Molding Machines?

This can be answered by saying that they can be classed under several different heads.

First. There is a molding machine which is known as the squeezer. After the operator has filled the flask with sand he presses the sand into position. This is generally done by a side lever, which is operated by the workman. All other operations in molding being performed in the same usual way as heretofore, therefore the name squeezer. It is simply the pressing or ramming of the sand into the mold.

Under the second head we might possibly class the machine as a draw or stripping plate machine, which by the movement of a lever drops the patterns from the mold they being rammed in the usual way by hand. This machine accomplishes but one thing, which is the drawing of the patterns.

Under the third head we might class the machine as one which combines the squeezer and the draw plate, and the operation of this machine is to squeeze or ram the mold and draw the patterns. This ramming is done either by the operator using a lever, as in the squeezer, or by power.

Under the fourth head there is a machine which has recently been placed upon the market and is known as the vibrator. This is usually combined with power for ramming (said power being used in the form of compressed air), thus almost instantaneously ramming the mold. The patterns are withdrawn by the movement of a lever with the right hand, and at the same time the operator presses a compression cock with the left hand, bringing a small hammer into play, which vibrates the pattern as it is drawn from the mold, and the operation is as follows: The ramming head is thrown back, leaving the top of the machine clear, a flask is placed on the same and filled with sand, a three-way cock attached to the machine is quickly operated, admitting compressed air of 70 to 80 pounds pressure to the inverted cylinder, the head having first been drawn into place. The cylinder, with the entire upper portion of the machine, is thus driven forcibly up against the ramming head, flask, sand and all. Often a single blow suffices to ram the mold, often the blow is quickly repeated (according to the demands of the particular mold in hand). Gravity returns the machine to its original position, as the three-way cock opens the exhaust. After pushing the ramming head back and cutting sprue, if the half mold is a cope, the operator seizes the lever, and drawing it forward and down raises the outer frame of the top of the machine containing the flask pins, with flask and sand thereon, away from the patterns, thus drawing the pattern from the sand. The operation on the drag is the same, but (as you will readily perceive) you must have two machines and a pattern for both cope and drag. Just as he seizes the pattern drawing lever with his right hand he presses with his left on the head of a compression valve, thus admitting air to the pneumatic vibrator already referred to. This consists simply of a double acting elongated piston having a stroke of about 5-16 inch in a valveless cylinder, and impacting upon hardened anvils at either end at the estimated rate of 5000 blows per minute, like the well known chipping or calking hammer. This vibrator does not really rap the patterns; it simply puts them in a condition of shiver, relieving all tendency of the sand to adhere to the patterns, thus allowing intricate carving in the center of the mold to be drawn as readily as the outside portion.

Having thus briefly described the different forms of molding machines, we have to consider their advisability as to stove plate molding.

### Use in Stove Molding.

In the first place the majority of these machines are intended for snap work, or molds which are usually made in snap flasks, and for these, where there is great enough multiplication, there is no doubt as regards to the utility and usefulness of either of them; but stove plate molding presents difficulties in the way of their general usefulness. The great majority are made in bound or wooden flasks, specially formed and barred for the patterns which they are designed to mold, and these are made in very small quantities. None of the machines that ram the mold (either by leverage or power) are designed to ram a barred flask. There are, however, certain articles (very few in number), namely, legs, covers, cross pieces and certain

grates, which may be made to advantage on these machines; but (as you will readily see) by taking either of these forms of machines, the draw plate (for instance) requires such an expense to make it and such care taking of it afterward that, unless there could be made at least 60 full days' work throughout the year from one pattern, the saving would hardly pay for the expense of the draw plate.

As in all of the articles mentioned or any others which I know of (in stove plate molding) it would require a pattern and a draw plate, both for the cope and the drag of the mold, and the usual operation would be that one operator would make the drag on one machine and another operator would make the cope on the other machine, placing the two together on the floor.

In the making of these draw plates the utmost care must be exercised; in fact the operation is so delicate that it requires a mechanic capable of working to 1-64 inch or less to make these plates properly, which of itself is very expensive.

On the vibrator machine the same difficulties occur.

In using this machine a match plate for the cope and drag have to be made, and these would have to be machined to a surface and the patterns placed thereon. This could not be made in the form of an ordinary match plate (such as we are familiar with in the stove trade), but would have to be started from a level plate and planed to absolute thicknesses, and then the drag or cope pattern placed on and fastened to this plate with the necessary partings. The same operation would have to be gone through with both cope and drag, and all parts brought into perfect alignment; therefore I would repeat that there is no form of machine, to our knowledge, in which the expense of rigging up for the machine would not be so great that, unless there were at least 60 full consecutive days' work for the machine on one pattern, it would not be of any economic value whatsoever.

It is claimed (and is possibly true) that some of the large pieces of stoves made in bound flasks could also be made or used on the molding machine, but this would mean a large quantity of special flasks. To illustrate: If a molding machine be made capable of making 60 top flasks per day, there would have to be 60 special top flasks provided for this work, and these flasks when not in use (as well as the patterns) would have to be cared for and stored, and as the average number of tops (in the average sized stove foundry) of any one size and style does not exceed 600, this would leave but ten days' work for the machine, and the storage and care of 60 flasks and the match or stripping plates during the year.

Now, while these machines are highly recommended and are adaptable for such articles as pipe fittings, car castings of different styles, hardware where large quantities can be made, yet everything depends upon the quantity.

### Where Machines Are Successful.

We know of one shop where molding machines are used and where the minimum order given for castings from the machine was 5000 molds, and in this shop their casting room for the storage of these castings occupies more space than the storage for their finished product. In fact, if my memory serves me right, they use a warehouse ground floor 300 x 800 feet.

We have had our attention called to an agricultural shop, in which we have been credibly informed there are 200 mowing machines made per day, all of one pattern. In this shop they use molding machines and use them to great advantage as well as economy, as the men work on one pattern day in, week in and month in from one year's end to the other, on the same identical pattern; and as some of these patterns are duplicated, taking two to a machine, they make as high as 400 castings from one pattern per day. These people use simply a stripping plate machine, as their flasks are barred and rammed by hand. They usually work their men in gangs, one gang making as high as 200 molds in one day.

The daily melt in this foundry is from 150 to 200 tons of iron, and yet we venture to make the assertion that there are more separate patterns in one line of ranges (comprising two sizes) than they have in this entire shop; and they claim their fittings for draw plate molding alone have cost them upward of \$50,000.

There are no doubt advanced men in the stove trade who believe that they can utilize these machines in their shops, and there may be special features, peculiar to themselves and their work, which will enable them to do so; but we cannot but think that in the majority of instances it will mean time, brains and money expended without adequate results.

In conclusion would say that the time may come (but it now seems very far distant) when molding machines can be used to advantage in stove plate molding, but that time can only come when such a consolidation of interest is made as will bring the 100 sets of patterns of one type of range now made down to one universal type made in one foundry and under one management. When this millennium arrives then molding machines will be a feature of stove plate molding.

\* Paper read at the convention of the National Association of Stove Manufacturers at Cincinnati, Ohio May 10-11, 1899



## MANUFACTURING.

### Iron and Steel.

The Inland Steel Company, manufacturers of Bessemer steel bars, angles, channels, tees, special shapes for agricultural implements, harrow teeth, plow beams, &c., whose works are at Chicago Heights, Ill., and main office is in the Marquette Building, Chicago, desire the trade to understand that they have not been absorbed by the Republic Iron & Steel Company, as reported in many papers, and that the mistake arose from the similarity of names between them and the Inland Iron & Forge Company. The company are not a part of any consolidation whatever, but will run independently, as they have always done.

On Tuesday, May 23, the American Steel & Wire Company formally took over the entire plant and blast furnaces of the Shoenberger Steel Company of Pittsburgh. John W. Gates, John Lambert and other leading officials of the American Steel & Wire Company were in Pittsburgh when the transfer was made. New officials have been elected as follows: Wallace H. Rowe, president; J. Ramsey Speer, first vice-president and superintendent; Klaus J. Steiner, second vice-president; Jos. McK. Speer, treasurer and sales agent, and W. L. Hirsch, secretary. The following Board of Directors were elected: J. Ramsey Speer, Klaus J. Steiner, Jos. McK. Speer, Wallace H. Rowe and C. L. Miller. The passing of these works to the American Steel & Wire Company marks the retirement of three former leading officials of the Shoenberger Steel Company from active connection with the iron trade. These are C. L. Fitzhugh, formerly president; J. Z. Speer, first vice-president; G. A. Steiner, second vice-president. These three gentlemen have been connected with the iron trade in Pittsburgh for many years, and retire with an enviable record.

The puddlers employed in the National Rolling Mills of the National Tube Works Company, at McKeesport, Pa., have received an advance of 25 cents a ton. The rate heretofore has been \$4 a ton.

The Scottdale Iron & Steel Company, Limited, Scottdale, Pa., are installing 1250 horse-power Cahall water tube boilers.

Arrangements are being made by the new owners of the Calumet Rolling Mill, at Cummings, Chicago, to have the machinery overhauled and put in condition for resuming operations at an early day in the manufacture of bar iron. The mill will be run as an independent enterprise.

The Champion Iron & Steel Company are successors to the Michigan Iron & Steel Company, Muskegon, Mich. They are incorporated under the laws of Illinois, with a capital stock of \$400,000. D. M. Hillis of Chicago is president; Jesse Spalding, vice-president; L. Friedman, secretary and treasurer, and other directors are E. W. Gillette, J. E. Hubbert and D. B. Scully. They expect to add considerably to the equipment of the plant at Muskegon, and probably manufacture sheets and tin plate, as well as iron and steel bars and open hearth steel billets.

At Pittsburgh legal notice has been given of the dissolution of the firms of J. Painter & Sons Company and Spang, Chalfant & Co., doing business under the name and comprising the Isabella Furnace Company. This latter concern have been taken over by the American Steel Hoop Company. The firm of J. Painter & Sons Company have also given legal notice of dissolution, they having sold their entire interest to the American Steel Hoop Company.

Fannie Furnace, at West Middlesex, Pa., which has been idle for a long time, will be started up shortly.

Preliminary to its sale by the receiver to the Republic Iron & Steel Company, the assets and liabilities of the Birmingham Rolling Mill Company, Birmingham, Ala., were reported to the court by a referee. The liabilities were \$480,480.70, including \$72,300 preferred stock, \$335,780.70 bills payable, \$20,000 unpaid interest, \$43,100 open accounts and \$9300 received indebtedness. The assets, including minimum value of plant, at \$275,000, unfinished stock at \$190,057, finished stock at \$59,000, open accounts of \$63,905, bills receivable of \$16,417 and cash on hand amounted to \$615,408.02. Net surplus by this showing, \$134,927.32.

Formal transfer has been made of the furnace and property of the Watts Steel & Iron Syndicate, Limited, at Middlesborough, Ky., to the Virginia Iron, Coal & Railway Company of New York. It is understood that the new owners expect to make extensive repairs and operate the steel plant to full capacity. The plant embraces two blast furnaces, both of which are in blast.

The Park Steel Company are erecting a large crucible works adjacent to their present plant in Pittsburgh. The company will manufacture all their own pots for the melting of steel.

Ella Furnace, at West Middlesex, Pa., has been blown in after a long idleness. This furnace was remodeled a few years ago, and only recently has been considerably improved. It is expected to turn out from 225 to 250 tons of Bessemer iron per day.

In one day recently 455 tons of open hearth billets were turned out at the Sharon Works of the National Steel Company, at Sharon, Pa.

The Fullerton Rolling Mill Company, with principal office at the New Jersey Corporation Guarantee & Trust Company Build-

ing, Camden, N. J., have been incorporated, with a capital of \$150,000, for the manufacture of iron and steel. The incorporators are Chester R. Baird, Andrew Hawthorne, Nicholas H. Wagner.

The plant and property of the Premier Steel Company, at Indianapolis, Ind., are to be sold on June 10, except the rights of the Indiana Steel Company, by virtue of their lease of a portion of the premises.

The organization of the Tidewater Steel Company was completed last week at a meeting of the stockholders in Philadelphia, the following Board of Directors being chosen: George H. Stickney, R. A. Williams, Jr., Evans R. Dick, Isaac N. Solis, Charles A. Porter, F. W. Wood, Richard H. Rushton, George S. Graham and George McCall. At the directors' meeting, which followed, George H. Stickney was elected president.

### Machinery.

The Warren City Boiler Works, Warren, Ohio, are building an addition, 50 x 100, to their main shop, are also putting in a new boiler house, and contemplate additional extensions shortly. The company have just put in a complete compressed air plant for operating riveters, calking and hoisting machines, and have also put in a new travelling crane, 48 feet span, which controls the main boiler floor. Abundance of work is on hand, and the company have not been so busy for a great many years.

The Hamilton Machine Tool Company, Hamilton, Ohio, write that they have just completed a large brick addition to their factory, to be used as an erecting room, pattern shop, drawing rooms and polishing department. Business is exceptionally good, they having all the orders they can fill for the next six months, while the foreign demand continues to increase also. During the past week some heavy shipments of tools were made to England, Germany, Sweden and Russia. About \$15,000 worth of new machinery has been added to the plant within the last year and three new double head planers, three new milling machines, two gear cutters and eight or ten additional lathes are being installed. This, together with the addition of 30 extra men during the past 90 days and operating their heavier tools 13 hours per day, gives the company a very much increased capacity for output.

The Sterling Emery Wheel & Mfg. Company, Tiffin, Ohio, have recently made a number of important improvements in their line of grinding machinery, and have enlarged their productive capacity considerably by the addition of extra tools. Trade is excellent, they are running overtime until 9 o'clock nights; their foreign trade is also very much on the increase, some heavy shipments having recently been made abroad. Additions to present plant will be made during the coming summer.

The Saginaw Mfg. Company of Saginaw, Mich., report a very busy season so far this year. The company issued a new wood split pulley price-list on May 1. It was intimidated by them, that, owing to the marked advance in the cost of material and labor, a decided advance in prices might be necessary in the near future.

The Norwalk Heating & Lighting Company, Norwalk, Conn., have been incorporated, with a capital of \$60,000, for the manufacture of machines for the production of light and heat. The incorporators are J. D. Kinney, M. H. Glover, F. I. Jones, W. R. Maples and J. W. Maples.

The Roth Gas Engine Company of Indianapolis, Ind., have been incorporated with a capital stock of \$50,000 by Charles C. Roth, G. W. Roth, Charles E. Barrett, Benjamin F. Haugh and Christian F. H. Waterman.

### Bridges.

The Great Northern has awarded the contract for building 15 small steel bridges on the western portion of its line to the Carnegie Steel Company. The contract calls for the use of 800 tons of steel, and amounts to about \$50,000. The contracts for the two big bridges at the Rocky Mountains are yet to be let. The contract with the Carnegie, however, includes nearly all of the smaller bridges which are to be built this season by the road.

The New York Superintendent of Public Works has awarded the following contracts: For bridge over the Tonawanda Creek, near Pendleton, Erie County, N. Y., to Milton Bridge Company, Albany, \$10,640. For construction of lift bridge over Erie Canal at Canastota, N. Y., to Havana Bridge Works of Montour Falls, \$15,693.

The Schuylkill Traction Company have decided to build a new steel trestle on their road below the Kohinoor coal banks, near Shenandoah, Pa., to replace the wooden structure.

### Hardware.

J. C. Speirs & Co., Worcester, Mass., manufacturers of drop forgings and bicycle wrenches, advise us that they are very busy on forgings for automobiles. They also report an excellent demand for their wrenches.

Veeder Mfg. Company, Hartford, Conn., manufacturers of the Veeder bicycle cyclometer, are erecting a brick addition to their plant, 50 x 40 feet, two stories high. The addition will be used as a storage room and shipping department.

The Ferris Stove & Mfg. Company, St. Louis, makers of the Ferris Wheel washing machine, have moved their factory to the southeast corner of Main and Morgan streets.



The Bronson Company of Cleveland, Ohio, advise us that they are selling large quantities of their None Such and Ever Ready coffee mills. The None Such being a new construction and a handsomely decorated mill, they state, is meeting with favor with the jobbing trade; and they are shipping this mill to the Pacific Coast and all through the Southern country, as well as to the general jobbing trade throughout the Northwest. The Ever Ready coffee mills are meeting with favor among tea, coffee and spice men. The company are getting out a new coffee mill and some other specialties which they will put on the market within a very short time.

The Standard Caster & Wheel Company, East Twenty-third street, New York, report that business is keeping up remarkably well, and that their factory is running from 12 to 14 hours per day.

During a recent visit to the works of Henry Disston & Sons, Philadelphia, attention was attracted to a large room full of packages, evidently in condition to stand a long passage and rough usage. The destinations were as follows: Melbourne, Port Natal, Brisbane, Sydney, Newcargell (New Zealand); Kobi, Japan; Zurich, Switzerland; Ronsdorf, Germany; Mexico, Ecuador, London, Glasgow, Liverpool and Newcastle-on-Tyne.

#### Miscellaneous.

The Rochester & Pittsburgh Coal & Iron Company, operating extensively in Jefferson and Clearfield counties, have posted notices that on and after June 1 an advance in wages will be paid to all employees in their mines. The advance is voluntary, and affects about 7000 men.

The Champion Iron Company of Kenton, Ohio, have secured the contract for a large lot of jail and iron work, at Oshkosh, Ind., and another similar contract at Coldwater, Mich.

The Ritter-Conley Mfg. Company of Pittsburgh, builders of iron and steel structures and heavy plate work, have voluntarily advanced wages of their employees 10 per cent.

The Pressed Steel Car Company of Pittsburgh recently shipped 50 steel cars to the Egyptian Railway Company, at Alexandria, Egypt.

The Pittsburgh Reduction Company of New Kensington, Pa., have just completed the building of a large rod mill for rolling wire and cables for electrical purposes. From the rods the aluminum is rolled down into  $\frac{1}{4}$ -inch wire, while sizes smaller than this are drawn. The mill is equipped with a cable machine, capable of twisting 49 strands of wire into a cable  $\frac{1}{2}$  inches thick. Another machine is being installed, which will make 127 strands into a cable 2 inches thick.

Byram & Co. of Detroit, Mich., manufacturers of the Colliau Furnace and other foundry machinery, seem to be very busy. They have just equipped a new malleable iron plant and a new gray iron plant at Detroit, and are executing orders for the General Electric Company, Schenectady, N. Y.; Niagara Radiator Company, Buffalo, N. Y.; Kingman Plow Company, Peoria, Ill.; S. B. Sexton & Son, Baltimore, Md.; South Baltimore Foundry Company, Baltimore, Md.; Herreshoff Mfg. Company, Bristol, R. I.; Nashua Iron & Brass Foundry Company, Nashua, N. H., and others.

The Buffalo Expanded Metal Company, Buffalo, N. Y., have been incorporated with a capital of \$25,000 by Richard Forrestel and William H. Kinch.

The Lindstrom Brake Company of New York City have been incorporated for the manufacture of brakes for cars, carriages, &c. The capital is \$100,000, and the incorporators are J. W. Van Gordon, C. Kirwin, W. F. McNamara, W. S. MacClymont, B. E. Duffy, all of New York.

A report has been in circulation that William Garrett of the Garrett-Cromwell Engineering Company, Cleveland, Ohio, had contracted with the McKenna Steel Working Company of Joliet to put up a mill for rolling wire rods from old steel rails. As a matter of fact the question is under consideration of making billets from old rails.

Rumor had it this week that a \$10,000,000 consolidation of Tin Can manufacturers was being organized. It is understood that some such scheme, having its origin in Chicago, was broached some time ago, and options were sought on the leading Tin Can manufacturing plants of the country. But the success of the projectors of the plan was not encouraging, several of the largest concerns declining to co-operate. The prospects of any present consolidation in the business are believed by the trade to be very remote.

The design for the "Lafayette dollar," to be coined in the interest of the Lafayette Monument Fund, has been selected by United States Treasurer Roberts. The design said to be chosen for the coin shows on one side the head of Lafayette and on the other the head of Washington. The issue of 50,000 of these coins was authorized by act of Congress for the purpose of swelling the fund for the Lafayette monument to be erected next year in Paris, and they will be sold, it is expected, at a good premium. The coins will not be issued before next winter.

### British Shipbuilding in 1898.

British shipping and shipbuilding form the subject of a recent report to the Bureau of Foreign Commerce of the Department of State at Washington by United States Consul James Boyle, at Liverpool. From this report the following data are extracted: The total mercantile marine shipbuilding output of 1898 for the whole world is estimated at 1,893,000 tons, and Lloyd's returns show that of this total output 1,387,570 tons gross were launched in the United Kingdom, the number of vessels being 761, of which only 17 were sailing vessels. In addition, last year there were 41 war ships launched in the United Kingdom, of 191,555 tons displacement. The total output of the United Kingdom for 1898 was therefore 802 vessels, of 1,559,125 tons. Not counting war ships, there were at the close of the year 584 vessels, of 1,401,087 tons gross, under construction in the United Kingdom. The corresponding figures at the close of 1897 were 505 vessels, of 1,013,319 tons. Lloyd's returns give the addition of steam tonnage to British registry during 1898 as 1,111,768 tons gross, and of sailing tonnage, 20,053 tons; total, 1,140,821 tons. So large an addition to steam tonnage has not been recorded in any previous year. About 90 per cent. of the tonnage added to the register consists of new vessels, not one of which was built abroad. The total tonnage transferred to foreigners during 1898 was 588,508 tons, far greater than during 1895, 1896 or 1897, when the transfers were exceptionally high. After allowing for losses, dismantling, transfers, &c., the net increase of tonnage in the British merchant marine during 1898 was 209,293 tons over 1897. There was, however, a net decrease of 99 vessels, the explanation being that, while there was an increase of 245 steamers, there was a decrease of 344 sailing vessels.

Of the tonnage classed by Lloyd's in 1898, 98.4 per cent. was built of steel and about 1.3 per cent. of iron. Compared with steam, sailing tonnage decreased from 25 per cent. of the total tonnage in 1891 to 2 per cent. in 1898.

Large as was last year's business in shipbuilding in British yards, this year's is expected to be larger. Of the launchings last year 1,131,000 tons were under Lloyd's survey; while early in January this year there were 1,186,000 tons of vessels being constructed under Lloyd's survey.

It is noteworthy that for the first time in British Government trade statistics the value of ships built in the United Kingdom for foreign registry is included in the monthly total export figures of this year. The total increase of exports in January, 1899, over those in the same month of 1898 was \$5,418,900, and of this \$2,649,623 expresses the value of ships built in British yards for foreign registry during January, 1899. February's increase of exports was \$8,459,107, and of this \$996,455 was the value of British built ships for foreign registry.

### Trade Publications.

**Wright's Trade Directory and Gazetteer.**—Wright's Trade Directory and Gazetteer has just been published in a fifth edition by George Wright, 121 Fulton street, New York. It is a book of over 4000 pages, each  $9\frac{1}{2}$  x 6 inches, and gives the trades, professions, population and resources of the principal foreign countries. For more convenient reference it is subdivided into 12 sections of different colored papers. On the front edge of the book is printed the various countries about which information is given, as follows: Victoria, New South Wales, Queensland, South Australia, New Zealand, Tasmania, West Australia, Fiji, Hawaiian Islands, India, Siam and Java, China, Japan, Philippine Islands, South Africa, Canada and Newfoundland, South America, Central America, Mexico, West Indies, Great Britain Buyers' Guide, America Buyers' Guide. This gives the scope of the work and the parts of the world about which information is presented. The book is about 6 inches thick, nearly a third of it being devoted to a buyers' guide of Great Britain and America, in which the principal manufacturers more fully call attention to their products. The book not only gives a comprehensive list of the different trades and professions in the countries named, but serves as a gazetteer of each county, city, town and village, especially useful to merchants and manufacturers seeking an extension of trade.

The coke manufacturers of West Virginia are watching with interest the result of a by-product plant that has been erected and put in operation in Pocahontas County, W. Va., by the Southwestern Improvement Company. The plant is designed to extract the heretofore waste gases from the coke ovens, which will be converted by chemical processes into ammonia and other preparations. A valuable material resembling asphalt is also said to be obtained.

## The Iron and Metal Trades.

The consolidation of 13 of the tube mills under the title of the National Tube Company has been effected. Like the majority of the consolidations in the Iron and Steel trades the new organization is not a monopoly, a number of plants retaining their independence.

The merger of the Carnegie-Frick interests is not expected to reach an issue until about six weeks from date. Henry Phipps has sailed for Europe, and H. C. Frick will probably go abroad next week.

There is growing excitement in the Iron trade over the continued advance in prices in nearly all its branches. In Pig Iron there has been a heavy business in all distributing centers, and what capacity is available is being taken for distant delivery. In some instances sales have been made at close to top prices well into next year. In the West considerable quantities have been taken by the Cast Iron Pipe makers, and there has been a heavy buying movement in the Chicago market by the Malleable Iron syndicate, a very large share of the heavy tonnage, running well up to 40,000 tons, being secured by local producers of Malleable Bessemer.

A somewhat significant transaction this week has been the sale of 1500 tons of Pig Iron to Germany at the full domestic prices.

In Pittsburgh the price of Bessemer Pig is now \$17.65, and at that price a lot of 6000 tons was placed. It is understood that one of the large Steel plants in the district is now in the market. A lot of 15,000 tons of Gray Forge was also sold at \$15.50, Pittsburgh, and there has also been an exchange of 35,000 tons of Bessemer Pig for Steel Billets.

The anthracite furnaces in Eastern Pennsylvania have been notified of an increase in the price of Anthracite Furnace Coal of 20 cents, to go into effect on June 1.

In Chicago the trade has been notified of an advance of 15 cents on the freight rates on Southern Iron to go into effect on June 30, contracts for shipments after that date not being protected.

An interesting event is the first sale of Alabama Billets, the quantity involved being 10,000 tons, to a local interest. The price reported is \$28 per ton.

In the Finished Iron trade the implement makers have again been heavy buyers, and further inquiries are in the market. Steel and Iron Bars have advanced both in the East and in the West.

A good amount of business is still crowding in on the Plate mills, whose prices have been pushed upward further.

A good run of orders is coming to the Structural mills. Representatives of the Beam manufacturers are to meet in this city to-morrow, and it is probable that an advance will be decided upon. Relatively, Structural Material is much cheaper than other lines of manufactured Steel.

We print elsewhere a series of letters from leading Bridge builders which show that, generally speaking, the advance in prices thus far has done little to check business, but that almost universally delay in delivering material is seriously interfering with work.

The Cast Iron Pipe trade is moderately active. Recently an Eastern plant has invaded the Western territory, capturing a large order in Duluth.

## A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type.  
Declines in Italics.

	June 1, 1899.	May 24, 1899.	May 3, 1899.	June 1, 1898.
<b>PIG IRON:</b>				
Foundry Pig, No. 2, Standard, Philadelphia.....	\$16.25	\$16.00	\$15.75	\$10.50
Foundry Pig, No. 2, Southern, Cincinnati.....	15.00	14.75	14.50	9.25
Foundry Pig, No. 2, Local, Chicago.....	16.00	15.50	15.00	11.00
Bessemer Pig, Pittsburgh.....	17.65	17.65	15.00	10.25
Gray Forge, Pittsburgh.....	15.50	15.25	14.50	9.25
Lake Superior Charcoal, Chicago.....	18.00	17.50	17.10	11.50
<b>BILLETS, RAILS, ETC.:</b>				
Steel Billets, Pittsburgh.....	29.00	28.00	26.00	14.75
Steel Billets, Philadelphia.....	30.50	29.75	27.50	17.00
Steel Billets, Chicago.....		28.50	25.50	16.25
Wire Rods, Pittsburgh.....			32.00	20.00
Steel Rails, Heavy, Eastern Mill.....	26.00	25.00	25.00	18.00
Spikes, Tidewater.....	1.70	1.70	1.70	1.40
Splice Bars, Tidewater.....	1.50	1.45	1.40	1.05
<b>OLD MATERIAL:</b>				
O. Steel Rails, Chicago.....	12.00	12.00	11.50	7.75
O. Steel Rails, Philadelphia.....	14.50	14.00	14.00	10.25
O. Iron Rails, Chicago.....	18.00	18.00	18.00	12.50
O. Iron Rails, Philadelphia.....	18.00	18.00	18.00	12.00
O. Car Wheels, Chicago.....	15.50	15.50	15.50	11.50
O. Car Wheels, Philadelphia.....	15.00	15.00	15.00	10.25
Heavy Steel Scrap, Chicago.....	11.00	10.00	10.00	8.00
<b>FINISHED IRON AND STEEL:</b>				
Refined Iron Bars, Philadelphia.....	1.60	1.60	1.55	1.05
Common Iron Bars, Youngstown.....	1.70	1.69	1.55	0.90
Steel Bars, Tidewater.....	1.85	1.80	1.75	1.10
Steel Bars, Pittsburgh.....	1.90	1.75	1.65	0.50
Tank Plates, Tidewater.....	2.40	2.30	2.20	1.25
Tank Plates, Pittsburgh.....	2.25	2.20	2.10	1.10
Beams, Tidewater.....	1.63	1.63	1.63	1.30
Beams, Pittsburgh.....	1.50	1.50	1.50	1.15
Angles, Tidewater.....	1.65	1.65	1.65	1.20
Angles, Pittsburgh.....	1.50	1.50	1.50	1.05
Skelp, Grooved Iron, Pittsburgh.....	1.90	1.90	1.75	1.05
Skelp, Sheared Iron, Pittsburgh.....	2.10	2.10	1.90	1.10
Sheets, No. 27, Chicago.....	3.15	3.15		1.95
Sheets, No. 27, Pittsburgh.....	2.85	2.85	2.75	1.85
Barb Wire, f.o.b. Pittsburgh.....	2.70	2.70	2.70	1.70
Wire Nails, f.o.b. Pittsburgh.....	2.00	2.10	2.10	1.30
Cut Nails, Mill.....	1.65	1.65	1.65	1.75
<b>METALS:</b>				
Copper, New York.....	18.50	18.50	19.25	12.00
Spelter, St. Louis.....	6.45	6.75	6.70	4.10
Lead, New York.....	4.45	4.45	4.37½	3.80
Lead, St. Louis.....	4.32½	4.30	4.30	3.30
Tin, New York.....	25.65	25.65	25.55	14.85
Antimony, Hallett, New York.....	10.00	10.00	10.00	8.75
Nickel, New York.....	38.00	38.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.05	4.05	4.05	2.85

## Chicago.

Office of The Iron Age, 805 Fisher Building. }  
CHICAGO, May 29, 1899. }

The market has been quite active in various lines and would probably be a great deal more so if manufacturers were not so well supplied with contracts. A sharp advance in prices has been made during the week, and the culmination of the upward movement is not yet in sight. In many instances orders are being taken to be delivered at the convenience of mills. This is particularly the case with Plates, on which an advance has been made of fully \$5 per ton. The leading Plate manufacturers are so completely sold up for months to come that the best they can now promise is delivery in February of next year.

**Pig Iron.**—Prices have been advanced from 50c. to \$1 per ton on all kinds of Iron, but they are not yet up to the level of prices made further east. Bessemer Pig Iron particularly is lower than the difference in freight rate would seem to justify. The week has been exceedingly active, the total tonnage of sales probably comparing very favorably with the best weeks ever known in this market. The local furnace companies have sold all the Iron they care to dispose of at present prices, and the Southern furnace representatives here have also done extremely well. A great deal of Iron has been purchased by the consolidations having headquarters here. The Pipe founders have taken considerable quantities. The manufacturers of Malleable Castings have also been heavy buyers during the week. They have, however, been somewhat conservative in making their contracts and while some have completely covered their requirements running into next year, others have only bought a part of what they want and will take their chances on the market. They fear that the high prices now prevailing may curtail the consumption of Malleable Castings. Inquiries are still in the market, showing that the buying movement has by no means terminated. An advance of 15c. in the freight rate on Southern Pig Iron has been announced to take effect June 30. Contracts for shipments after that date are not protected. This makes the rate \$3.65 from Birmingham to Chicago. We quote for cash as follows:

Lake Superior Charcoal.....	\$18.00 to \$20.00
Local Coke Foundry, No. 1.....	16.50 to 17.00



Local Coke Foundry, No. 2.....	16.00 to	16.50
Local Coke Foundry, No. 3.....	15.50 to	16.00
Local Scotch, No. 1.....	17.00 to	17.50
Ohio Strong Softeners, No. 1.....	19.00 to	20.00
Southern Silvery.....	16.50 to	16.75
Southern Coke, No. 1.....	16.50 to	16.75
Southern Coke, No. 2.....	16.00 to	16.25
Southern Coke, No. 3.....	15.50 to	15.75
Southern Coke, No. 1 Soft.....	16.50 to	16.75
Southern Coke, No. 2 Soft.....	16.00 to	16.25
Foundry Forge.....	14.75 to	15.00
Gray Forge and Mottled.....	14.75 to	15.00
Southern Charcoal Softeners.....	16.00 to	16.50
Alabama and Georgia Car Wheel.....	18.50 to	19.00
Malleable Bessemer.....	17.00 to	18.00
Standard Bessemer.....	18.00 to	18.50
Jackson County and Kentucky Silvery, according to Silicon.....	19.00 to	20.00

**Bars.**—A large tonnage of Bar Iron is being placed, including contracts from wagon manufacturers and others who usually buy at this time. The usual quotations of mill shipments of Common Iron are 1.70c. to 1.80c., but in some instances resales are being made by parties who purchased more than they required at 1.60c. to 1.65c. This Iron will soon be disposed of, however, so that it is not seriously disturbing the market. Soft Steel Bars have been sold in good quantities at 1.85c. to 1.90c., Chicago, and a number of implement contracts have been placed. These prices will probably be advanced before the end of the week as Pittsburgh manufacturers have sharply advanced their rates and in some instances are quoting as high as 2.40c., Chicago, on Ordinary Soft Steel Bars. Hoops and Bands are in good demand and manufacturers quote 2.15c., base, Chicago. Jobbers report a heavy trade, quoting small lots from stock at 2c. for Bar Iron, 1.90c. to 2c. for Soft Steel Bars, and 3.20c. to 3.25c. for large lots of Norway and Swedish Iron, and 3.50c. for small lots.

**Car Material.**—The car builders are all very busy, but new orders for cars are scarce and the demand for car material is therefore quite light.

**Structural Material.**—New business is quiet. A heavy tonnage, however, is being received on old contracts and the mills are getting further in arrears on deliveries even on Beams and Channels. They are furthest behind on Universal Plates, on which an advance has been made of \$5 per ton and deliveries cannot be promised before next February. Mill shipments are quoted as follows, Chicago delivery: Beams, 18 inches and over, also Angles under 3 and over 6 inches, 1.75c. to 1.85c.; Beams and Channels, 15 inches and under, and Angles 3 to 6 inches, 1.65c. to 1.75c.; Tees, 1.70c. to 1.80c.; Universal Plates, 2.65c. Store prices are from ¼c. to ½c. above these prices.

**Plates.**—A continued demand is reported, which the mills are unable to meet. The local manufacturers are completely out of the market, while the Pittsburgh mills are unable to make earlier deliveries than three to four months. Prices have been advanced \$5 per ton. Small lots of Tank Steel from stock are now selling at 2.75c. to 3c. Mill shipments are quoted as follows, Chicago delivery: Tank Steel, 2.65c.; Shell, 2.75c.; Flange, 2.85c.; Marine, 2.95c.; Fire Box, 3c. upward, according to brand.

**Merchant Pipe.**—The lines are being drawn tighter and manufacturers are now making no quotations for mill shipments, while they quote two 10's for such sizes as they can supply from stocks in their warehouses. The demand for Boiler Tubes is heavy, but prices are unchanged. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1½ inches inclusive, 40 per cent. off; 2 to 2¾ inches inclusive, 52½ per cent. off; 3 inches and larger, 57½ per cent. off, with an extra 5 off for carload lots.

**Sheets.**—Inquiry for Black Sheets is good, but it seems to be almost impossible to secure a quotation from any mill, as they are all well sold up for some time to come. The demand for Galvanized is stronger and mill shipments are quoted at 70 and 10 to 70 per cent. off. Jobbers report an extremely good demand, quoting small lots of No. 27 Black at 3.15c., Wood's Smooth, 3.35c., and Galvanized at 70 per cent. off.

**Merchant Steel.**—The mills are so crowded with work that they are getting afraid to take further orders and notify local representatives to submit all inquiries before making sales. The demand here is fair, but not heavy. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.45c. to 2.55c.; Smooth Finished Tire, 2.25c. to 2.35c.; Open Hearth Spring Steel, 2.70c. to 2.80c., base; Toe Calk, 2.45c. to 2.55c., base; Ordinary Tool Steel, 5.50c. to 7c.; Specials, 10c. and upward. Jobbers are quoting small lots from stock at 2.75c. for Tire, 2.95c. for Machinery, 3.20c. for Spring, and 2.95c. for Toe Calk, full extras.

**Billets and Rods.**—So far as known no quotations on Billets are being made to consumers in this vicinity. Shipments of Steel are reported to be going to Pittsburgh from Lorain and other outside Steel works. A

small quantity of Rods was sold during the week by manufacturers who had a small tonnage released, but no further quantity is available. They are nominally quoted at \$37.50 to \$38.

**Rails and Track Supplies.**—The local manufacturers are turning down many inquiries for Standard Sections of Steel Rails because of inability to make the deliveries desired. They continue to quote \$26 to \$28, according to quantity. Many inquiries for Light Rails are also being passed for the same reason, although the mills can make deliveries on these in August. Light Weight Sections are quoted at \$30 to \$37, according to weight. Track Supplies are quoted as follows: Fish Plates, 1.50c. to 1.55c.; Splice Bars, 1.40c. to 1.50c.; Spikes, 2.25c. to 2.35c.; Track Bolts, with Hexagon Nuts, 3c. to 3.10c.; Square Nuts, 2.85c. to 2.90c.; Steel Links and Pins, 2.25c. to 2.30c.; Iron Links and Pins, 2c.

**Old Material.**—Sales have been made of nearly all kinds of Scrap, but the market is not particularly active. The leading consumers are well supplied with stocks of Old Material for the present and are therefore not buying heavily. A sharp demand is experienced for short pieces of Old Steel Rails and prices are firm. The advancing prices of Pig Iron should have some effect on Cast Scrap, but so far this has not been the case. A change has been made by leading buyers in this vicinity in classifying Busheling Scrap, or No. 1 Mill, as it is termed. They will have nothing hereafter thinner than No. 12 gauge. This class of Scrap has hitherto included such undesirable material as Old Stove Pipe and other thin Sheet Iron. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$18; Old Steel Rails, mixed lengths, \$12 to \$12.50; Old Steel Rails, long lengths, \$13 to \$13.50; Relaying Rails, \$18 to \$19; Old Car Wheels, \$15.50; Heavy Melting Steel Scrap, \$11 to \$12; Mixed Steel, \$8.50. The following selling prices are per net ton: No. 1 Railroad Wrought, \$15.50 to \$16.; Dealers' Forge, \$12.50; Fish Plates, \$16.50; No. 1 Mill, \$9 to \$9.50; Heavy Cast, \$10.75 to \$11; Stove Plates, \$7 to \$7.50; Iron Car Axles, \$18.50; Horseshoes, \$11.50; Cast Borings, \$5.50 to \$6; Steel Axle Turnings, \$8.25; Iron Axle Turnings, \$8.75; Machine Shop Turnings, \$7.

**Metals.**—Prices show comparatively no change, carload lots of Lake Copper being still quoted at 18¼c., and Western brands 17¼c., while carload lots of Spelter are to be had at 6.80c. and Pig Lead at 4.40c. to 4.45c.

**Tin Plate.**—Notwithstanding the heavy demand for all kinds of Tin Plate, manufacturers have made no advance in prices. Jobbers report a strong movement in Roofing Plates and a very good demand for Cokes from fruit can manufacturers and from the furnace pipe trade. The speculative stocks of Roofing Plates seem to have been absorbed and prices are firmly maintained.

## Pittsburgh.

Office of The Iron Age, Hamilton Building,  
PITTSBURGH, May 31, 1899.

(By Telegraph.)

**Pig Iron.**—The Pig Iron market is exceedingly strong and the price of Bessemer is all of \$17, at Valley furnace, with reports of sales at higher prices. The independent furnaces have very little Iron to spare for the next three or four months, but have more for last quarter of the year. The reports in the daily press of a probable Pig Iron famine are sensational, and not borne out by facts. A good deal of new furnace capacity will come in the market before long and some stacks that have been idle for some time will soon be started. It would seem that there is more probability of a surplus of Pig Iron in the last three or four months of the year than of a famine. Gray Forge is in moderate demand, and prices are higher. Foundry Irons are active and prompt delivery very difficult to get. We quote Bessemer Pig, \$17; Gray Forge, \$15 to \$15.25, both at Valley furnace; No. 2 Foundry, \$16 to \$16.25; Gray Forge, \$15.50 to \$15.75; Bessemer, \$17.65; Basic, \$16.25 to \$16.50, all f.o.b. Pittsburgh. We note a sale of 6000 tons of Bessemer Pig at \$17, Valley furnace, equal to \$17.65 Pittsburgh, for last six months. There has also been a sale of 35,000 tons of Bessemer Pig by the Republic Iron & Steel Company to the National Steel Company, they taking Billets in payment. We note a sale of 15,000 tons of Gray Forge at \$15.50, Pittsburgh.

**Billets.**—Steel can hardly be had at any price. It is stated that one small lot for spot shipment has been sold

at a price very close to \$30, Pittsburgh. We can note a sale of 1000 tons at \$28, maker's mill, outside Pittsburgh district. The National Steel Company are reported to be quoting on the basis of \$27.50, maker's mill for 4 x 4, and \$29.50, maker's mill, for small Billets.

**Sheet Bars.**—There have been several sales of Sheet Bars since our last report at prices ranging from \$29 to \$29.50, maker's mill. We can note a sale of 1000 tons at \$30.25, delivered, with a 75c. freight rate.

**Spelter.**—We quote prime Western grades at 6.90c., Pittsburgh.

(By Mail.)

The unparalleled activity in the Iron trade which has existed since shortly after the first of the year continues and shows no signs of early abatement. There is some question, however, as to whether the present exorbitant demand for all kinds of raw and finished material is entirely legitimate or whether part of it is not speculative. It is difficult for a seller to know, and, in fact, he has no means of knowing, whether the buyer who places a contract for 1000 tons of Billets has sold only 500 tons of material against the purchase of Billets or 1000 tons. In the first event the purchase of the additional 500 tons would be purely speculative and it is not unlikely that some of the heavy contracts placed for material some time since were partly speculative. It is a fact that the mills are running largely on old contracts at prices much lower than now prevail, but, on the other hand, it is also true that every day that goes by sees these old contracts nearer being cleaned up, and the average price being obtained by the mills is steadily increasing. Some concern is being felt by the conservative element in the trade on account of the extraordinarily high prices that are now prevailing, and it is feared when the reaction comes that it will be all the more severe. As far as the balance of this year is concerned, however, it does look as though the present activity and high prices would be maintained. In the week the Valley furnaces have put a price of \$17 on a limited amount of Bessemer Pig for delivery in last six months. The situation in the Valley is somewhat different from what it was some time ago. Three or four of the furnaces have been taken over by the Republic Iron & Steel Company, and the present agreement is also understood to be on different lines from that in force some time ago, being more in the nature of a verbal agreement. The individual furnaces—that is, those stacks which are not affiliated with other concerns, are very firm in their ideas as to prices and are inclined to sell only a very small amount of Iron, believing they will get \$20, or very close to it, for second half. Pittsburgh is practically out of the Steel market, some Steel coming into this section from other places. In Finished Material last week's prices are fully maintained, but are no higher.

**Ferromanganese.**—The local producer continues to quote \$85 for 80 per cent. Ferro, at mill.

**Structural Material.**—A meeting of the Beam pool is to be held in New York City on Thursday, June 1, and a moderate advance in prices is expected. There is a very heavy demand for all kinds of Structural Material and mills are pushed to get out material as fast as wanted. Considerable work has recently been placed in the East, a good deal of which has been taken by a local mill. We quote: Beams and Channels, 15-inch and under, 1.50c.; 18, 20 and 24 inch, 1.60c.; Universal and Sheared Plates, 2.25c.; Tees, 1.55c.; Zees, 1.50c.; Angles, 3-inch and over, 1.50c.; 2 and 2½ inch, 1.90c.; 2½-inch and smaller, 2c., all f.o.b. Pittsburgh.

**Bars.**—Prices on both Iron and Steel Bars are higher, and a leading local mill has sold Steel Bars at 2c., at mill, and are quoting 1.90c. minimum. Iron Bars are quoted at 1.70c. to 1.75c., at mill in Mahoning Valley. A large amount of inquiry is in the market from implement makers, who desire to contract for their requirements for considerable time ahead. The terms under which Bars have been sold in the past are being radically changed by the Republic Iron & Steel Company and shorter terms of payment will prevail in the future. We quote Common Iron Bars at 1.70c. to 1.75c., at mill, while Refined Bars of special grade are quoted at 2c. to 2.10c. We quote Steel Bars at 1.90c. to 2c., half extras, at mill.

**Merchant Steel.**—There continues to be a heavy demand and prices are firm and have again advanced. Some of the mills are practically out of the market as sellers, having all the material on their books they care to enter. We quote Soft Open Hearth Machinery Steel, 2.75c.; Common Spring Steel, 2.75c.; crucible analysis, 3c.; Cant Hook Steel, Open Hearth, 3.50c.; Wedge Steel, Open Hearth, 3.50c.; Tire Steel, ¾ x 3-16 inch and

heavier, 2.75c.; Plow Slabs, 3-16-inch and heavier, 4 inches wide and over, Bessemer and Open Hearth, 2.75c.; Lay Steel, rolled, 3.25c.; hammered, 4c.; Tool Steel, 6c. to 14c., depending on quality, all f.o.b. Pittsburgh, 30 days.

**Rails.**—The local mill continues to quote \$25, at mill, for Rails in sections of 25 lbs. and over. A somewhat unusual condition exists in the fact that the price of Rails is about \$3 less than the price of Billets. Heretofore the price of Rails has usually been \$1 a ton or more above Billets.

**Plates.**—The Plate market continues exceedingly active and the minimum price of Tank is 2.25c., at mill, with some concerns quoting higher. There is a heavy demand, and only in very exceptional cases and for small lots are any of the mills able to promise deliveries inside of three or four months. Some of the leading mills are sold up for even longer periods. A good deal of work has been placed the past week, among which was a Government job calling for some 3000 tons, placed with an eastern mill. Work on the three mills under construction by the Carnegie Steel Company is being pushed night and day, and August 1 is the date set for the completion of these mills, which will give this concern an additional capacity of about 1000 tons of Plates per day. Prices are very strong and we quote: Tank, ¼-inch and heavier, 2.25c.; Shell, 2.30c. to 2.35c.; Flange, 2.40c. to 2.45c.; Marine, 2.50c. to 2.60c.; Fire Box, medium quality, 2.60c. to 2.75c.; best quality, 3c. to 3.25c., all f.o.b. Pittsburgh.

**Sheets.**—There is a very active demand for Sheets and all the mills are away behind in deliveries, buyers finding it absolutely impossible to get shipments as fast as desired. In view of the negotiations on for the consolidation of the Sheet mills into one company, consumers believe prices will be higher and are trying to cover their wants as far ahead as possible. It is understood that fair progress is being made in the move to consolidate the mills, but that it will not be accomplished for some little time yet. In the case of two or three concerns who have dual plants further negotiations will be necessary. Considerably more than 75 per cent. of the Sheet capacity is under option to Isaac W. Frank, who has been looking after this end of the matter. Prices are exceedingly strong and we quote No. 27 Black Sheets at 2.85c.; No. 28, 2.90c. We note a sale of 200 tons of No. 28 at 2.90c., Pittsburgh. The demand for Galvanized Sheets is exceptionally heavy and prices very strong. Two or three leading mills continue to quote 75 per cent. off, with 15c. freight allowance for large lots, while some mills ask considerably higher prices. Jobbers find it very difficult to get deliveries and the scarcity of Sheets for prompt shipment seems to be increasing.

**Iron and Steel Skelp.**—There is an exceptionally heavy demand for both Iron and Steel Skelp and deliveries are very difficult to obtain. Some round lots of Grooved and Sheared Iron Skelp have been sold in this market in the past week at high prices. The local mills rolling Skelp are sold up for some time ahead and considerable is being brought into this market from Eastern mills. We quote: Grooved Steel Skelp, 1.85c. to 1.90c.; Sheared Steel Skelp, 2.25c. to 2.40c., depending on size; Grooved Iron Skelp, 1.90c. to 1.95c.; Sheared Iron Skelp, 2.10c. to 2.20c., all f.o.b. Pittsburgh. We note sales of about 6000 tons of Sheared Iron Skelp at a price slightly above 2c., f.o.b. Pittsburgh.

**Pipes and Tubes.**—As intimated in this report last week would be the case, the Pipe deal has been closed up and the National Tube Company have taken over 13 of the leading Pipe mills in the country. However, there is considerable capacity that has not been included in the consolidation. Seven prominent concerns have not been taken over, these being A. M. Byers & Co. and Spang, Chalfant & Co. of Pittsburgh; Reading Iron Company, Reading, Pa.; Conshohocken Tube Company (Longmead Iron Company), Conshohocken, Pa.; the Crane Company, Chicago, Ill.; the Tyler Tube & Pipe Company, Washington, Pa., and Western Tube Company, Kewanee, Ill. The policy of the National Tube Company as regards prices has not yet been announced, but higher prices on Pipes and Tubes, partly as a result of the consolidation, but more on account of the extraordinary demand, are probable. We quote Black and Galvanized Merchant Pipe at 60 per cent. off, with three 10's and additional in less than carload lots, maker's mill, and three 10's and 5, delivered, in carload lots. Prices on Casing are exceptionally strong and demand is large. We quote: Screw and Socket Joint at 45 per cent.; Inserted Joint, 40 per cent., with an extra 5 per cent. to dealers. Boiler Tubes are in very urgent demand, and it is predicted that next fall we will have the biggest shortage in Boiler Tubes ever known. Prices are strong and we quote 1¼ to 1½ inch, Iron and Steel, 40 per cent. off list; 1¼ to 2½ inch, Iron, 50 per cent.; Steel, 55 per



cent.; 2¼-inch and larger, Iron, 55 per cent.; Steel, 57½ per cent., with 5 per cent. to dealers.

**Connellsville Coke.**—Last week there were 16,318 ovens in the Connellsville region active and only 2335 idle, the output being 171,116 tons. There was a considerable shortage in car supply and shipments fell off over the previous week. Prices on Furnace and Foundry Coke are very strong and we quote strictly Connellsville Furnace Coke at \$2.15. Some brands are offered at slightly lower prices. We quote Foundry Coke at \$2.15 to dealers and \$2.30 to consumers, all in tons of 2000 lbs., at oven.

## Philadelphia.

Office of *The Iron Age*, Forrest Building,  
PHILADELPHIA, PA., May 29, 1899.

The market for Iron and Steel shows great strength and increasing activity. The scarcity of material appears to be as great as at any time during the year, and the fact that neither mills nor furnaces are able to catch up suggests the possibility of something akin to a famine during the summer months. Buyers are getting to be very anxious in regard to the matter, and are therefore doing all they can to secure themselves against contingencies. Under the pressure to place orders prices are advancing along the entire line, Pig Iron being 50c., Billets \$1 and Finished Material \$1 to \$2 dearer than on date of our last report. The feeling is very nervous, however, and if deliveries could be guaranteed buyers would willingly pay more money, but as producers are already under heavy engagements they are not inclined to go much further in view of the possibilities in regard to prices during the latter portion of the year. Everybody feels that prices are high enough, and if further advances could be avoided they certainly would be, but if an actual scarcity is unavoidable there is no use in throwing away advantages even though they may be temporary, and, besides, there may be considerable danger in standing in the breach against overwhelming odds. It is certainly a curious state of affairs to find that with the greatest production on record we have at the same time the greatest scarcity on record. A great deal is said about losing the export trade in consequence of high prices, and temporarily there is no doubt that the business will be considerably disarranged, but it will come back whenever we have a surplus and prices get to a more normal condition. It has been thoroughly demonstrated that the United States can control the markets of the world for Iron and Steel, and the mere fact of the home demand requiring all the current output is no reason for assuming that there will be no outside demand as soon as we have Iron and Steel to spare. On the contrary, prices in other countries are following our lead, and it is by no means certain that the trade will be lost, even at the advanced prices. Of course we are working under entirely new conditions, so that what happened in former days as the result of unexpected advances in prices may not apply at all now, except in a very mild way. It is a very different matter to be subject, as we were a decade or two ago, to floods of foreign material, while at the present time the worst that can happen is to lose some of our export business. Then again, the uses to which Iron and Steel are being applied is increasing the demand enormously, and countries that were hardly known at all are now heavy consumers, and will continue to be so in an increasing ratio, so that while prices may need readjustment from time to time there is no reason for supposing that there will be any serious shrinkage in consumption, certainly not at present.

**Pig Iron.**—The irregularity in prices noted a week ago is still continued, although the tendency is uniformly in the direction of higher prices. Some move a little faster than others because of their nearness to markets which are at times a little more attractive than Philadelphia, but they all get there eventually. The scarcity of Iron is very marked at this time, and so far as can be seen there is no immediate prospect of relief. Stocks on furnace banks are reduced to the very lowest point, while the current output is nearly all taken up, so that it is extremely difficult to crowd in a new order, unless under very liberal allowances in regard to date for delivery. Some business has been done at a little over \$16.50 for No. 2 X Foundry, although a fair average for the week would probably be about \$16.25, but the chances are strong for \$16.50 or better during the week upon which we have now entered. Some holders quote \$17, others \$16.75, and a few possibly at \$16.50, but metal is doled out very sparingly, and holders can pretty nearly name their own prices. Most of the business done has been in small or medium sized lots, makers being rather opposed to long contracts, notwithstanding the fact that buyers would pay full prices if they could get what they want. As near as can be given at this time seaboard prices would be about as follows: No. 1 X Foundry,

\$16.75 to \$17.25; No. 2 X Foundry, \$16.50 to \$17; Plain, \$16; Standard Mill Iron, \$15.75 to \$16; Clinker Irons, \$14.50 to \$15; Basic, \$15.75 to \$16; Low Phosphorus, \$19.50 to \$20, according to points of delivery.

**Billets.**—There is a great deal of inquiry, and some good sized lots could be sold providing that material could be had at reasonable prices. It is almost impossible to get Steel under offer, however, as makers everywhere appear to be fully sold up. Nominal prices are about \$30.50 to \$31, but they are liable to change at any moment, but as a matter of fact there is no Steel for sale.

**Plates.**—There is no abatement in the demand for Plates. Mills are turning orders down every day, as it is a physical impossibility to give buyers what they want. Prices do not count for much, and in some cases \$5 per ton premium is bid for guaranteed shipments during June and July. Prices are higher, but in a general way are about as follows for such deliveries as the mills are able to make: Carload lots and upward are quoted at 2.35c. to 2.40c. for ¼-inch and thicker; Shell, 2.50c. to 2.55c.; Flange, 2.70c.; Fire Box, 2.75c. to 2.85c.

**Structural Material.**—There is no let up in the demand, and mills have more than they can do to take care of the business that is put before them. Prospects are excellent, and there is every reason to believe that the demand will keep up for a long indefinite period. Prices are nominally as follows, but special rates are paid for June and July deliveries: Angles, 1.63c.; Beams, 15-inch, 1.63c.; Tees, 1.68c.; Zee Bars, 1.68c.; Bulb and Deck Beams, 1.83c.

**Bars.**—There is a great scarcity of Bars, and although prices are supposed to be unchanged they are bringing more money than at any time within the past 10 years. The demand is enormous and shows no signs of abatement. Prices for Bars are as follows for seaboard delivery or its equivalent: Ordinary Bars, 1.45c. to 1.50c.; Refined Bars, 1.60c. to 1.65c.; Test Bars, 1.70c.; Steel Bars, 1.85c. to 1.90c.

**Sheets.**—The demand is up to the highest limit ever reached, particularly for the lower numbers. Mills are constantly pushed for deliveries, but in many cases they are a long way behind, with little or no prospect of catching up this side of midsummer. Prices very firm as follows for best makes (Common Sheets two-tenths less): No. 10, 2.70c.; No. 14, 2.80c.; No. 16, 2.90c.; Nos. 18-20, 3c.; Nos. 21-24, 3.10c.; Nos. 26, 27, 3.20c.; No. 28, 3.30c.

**Old Material.**—There is no change from last week. Prices are irregular and the supply comparatively large, but holders resist a decline, and expect to see the market again in their favor in course of a very short time. The following are a fair average of bids and offers for deliveries in buyers' yards: Cast Borings, \$10.50 to \$11; Wrought Turnings, \$11.50 to \$12; Machinery Cast, \$13 to \$13.50; Old Car Wheels, \$15 to \$15.50; Heavy Steel Scrap, \$14 to \$14.50; Steel Rails, \$14.50 to \$15; Iron Rails, \$18 to \$19; No. 1 Railway Scrap, \$18 to \$19; Iron Axles, \$21 to \$22; Steel Axles, \$16.50 to \$17.50.

## St. Louis. (By Telegraph.)

Office of *The Iron Age*, 512 Commercial Building,  
ST. LOUIS, May 29, 1899.

**Pig Iron.**—Prices are hardening and the top range figures of last week on all grades except Gray Forge and Mottled are named as selling prices to-day. Sales and inquiries continue and the buyer who cannot obtain immediate shipment does not hesitate to place order, subject to furnace delivery. It is questionable whether any speculation is being done, and the opinion rather prevails that purchases are being made for legitimate wants. Specifications for balance of the year's business are being made up and the showing is favorable to the present condition and high prices keeping up. It is said with authority that the contracts and orders now on books of the furnaces bought by the Republic Iron & Steel Company will be filled without doubt. We quote f.o.b. cars, St. Louis:

Southern, No. 1 Foundry.....	\$16.25
Southern, No. 2 Foundry.....	15.75
Southern, No. 3 Foundry.....	15.25
No. 1 Soft.....	16.25
No. 2 Soft.....	15.75
Gray Forge.....	\$14.50 to 14.75
Mottled.....	14.25 to 14.50

**Bar Iron.**—Various quotations are made to-day on Bar Iron mill shipments, the range being from 1.75c. to 1.85c., St. Louis, half extras. Thirty days' net cash are named as net terms. Small lots from store are still quoted at 2c., and full extras. Soft Steel Bars have stiffened to 1.90c., at mill. Jobbers state 2.10c. is market price on lots out of stock. Mills are not making shipments with any great freedom and difficulty may continue in obtaining reasonably prompt deliveries.

**Rails and Track Supplies.**—Some active work is being done on new lines in this territory and improvements on old lines being furthered. New prices are named on some Track Supplies, and we quote as follows: Splice Bars, 1.60c. to 1.70c.; Track Bolts, with Square Nuts, 2.80c., with Hexagon Nuts, 2.95c.; Spikes, 2.40c.; Iron or Steel Links and Pins, 2.20c. to 2.30c.

**Pig Lead.**—The market is very quiet and holders firm in demands. One car of Soft Missouri sold at 4.32½c., with better grades held at 4.35c. Price on Lead Ore is unchanged at \$26 per 1000 pounds.

**Spelter.**—The market is singularly dull. No actual sales to base quotations, but 6.45c. to 6.50c. named as representing trade. The top price of Zinc Ore fell off 50c. to \$49.50 per ton.

## Cincinnati. (By Telegraph.)

Office of The Iron Age, Fifth and Main streets, {  
CINCINNATI, May 31, 1899. }

From the present indications it looks as though buyers were losing their heads again and rushing into the market for Pig Iron in a way which has a very disquieting effect. The market is feverish and quite unsteady. There has been a general advance of about 50c. per ton on all grades, and at this writing values are pretty hard to estimate. Most of the iron sold within the past week, however, was placed on the basis of last week's quotations or 25c. advance. At to-day's figures, furnaces appear to be extremely independent, and there is every probability of a further advance. The month of May has far exceeded the tonnage of any other month during the present year, and commission men are in excellent spirits over the result. During the early part of last week buying in all grades of Foundry Iron was heavy and a great deal of iron was placed for delivery the first half of 1900. A sale of 100 tons of No. 2 Foundry Iron on the basis of \$12.75, Birmingham, is reported. This, however, is an ultra quotation and hardly represents the market. On the basis of \$12.50 the entire market is strong and but little, if any, stock is being offered at a less figure. The same condition exists in both Northern and Southern circles, and it is daily growing more difficult to place orders for standard grades for delivery any time during the present year. The demand for Mill Irons, while not so active as it has been, is yet far from stagnant, and Gray Forge is now strong at \$11.50, Birmingham. We quote f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$15.50 to \$16.00
Southern Coke, No. 2.....	15.00 to 15.50
Southern Coke, No. 3.....	14.50 to 15.00
Southern Coke, No. 1 Soft.....	15.50 to 16.00
Southern Coke, No. 2 Soft.....	15.00 to 15.50
Southern Coke, Gray Forge.....	14.25 to 14.50
Southern Coke, Mottled.....	14.25 to 14.50
Ohio Silvery, No. 1.....	18.00 to 19.00
Ohio Silvery, No. 2.....	17.50 to 18.25
Lake Superior Coke, No. 1.....	17.00 to 17.50
Lake Superior Coke, No. 2.....	16.75 to 17.25

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$16.25 to \$16.75
Lake Superior Car Wheel and Malleable .....	20.00 to 21.00

## Cleveland.

CLEVELAND, OHIO, May 29, 1899.

**Iron Ore.**—The market so far as actual transfers of Ore are concerned has shown little change from the weeks which have preceded it, and has thus been confined to the disposal of a few small lots, many of them consisting of Ore which has been on hand for years past and would, nine chances out of ten, not have been touched had it not been for the stringent conditions at present prevailing. Prices, however, show no break, every sale being recorded at a very substantial advance over the prices fixed by the association. Quotations are on the following basis: Specular and Magnetic Bessemer, \$4; Specular and Magnetic non-Bessemer, \$3.50; Red Hematite Bessemer, \$4; Red Hematite non-Bessemer, \$3.25. There is no doubt that were blocks of Ore of any considerable size thrown on the market even better quotations than these would prevail, but the sold up condition of everything makes this a practical impossibility. Meanwhile the situation involving the water transportation of Ore shows the greatest activity. Charters have been made at 75c. from the head of the lakes and 70c. from Marquette, while 65c. is being offered for Escanaba tonnage, with no vessels available, and will undoubtedly be paid before this correspondence reaches readers. Although no further advance is looked for this week, there is a practical certainty that next week will see an additional 5c. tacked on to carrying charges from all Ore ports. The Ore handling plants at all Lake Erie ports are now in full operation, and the next few weeks will undoubtedly witness the establishment of new records both for the carrying and handling of Ore.

**Pig Iron.**—The situation shows no perceptible change since last week. In accordance with the agreement reached at the meeting of the Bessemer Furnacemen's Association in this city last week no sales of Bessemer have been made at less than \$17, while the quotations on Foundry Irons and Lake Superior Charcoal stand. The demand is, however, all that could be desired.

**Finished Material.**—The conditions of the market during the past week have been most satisfactory. Inquiry has been brisk and not a few orders have been placed. Orders for Ship Plates have been booked at 2.50c., Pittsburgh, and for Bar Iron at 2c., Pittsburgh, delivery at the end of the year being the best assurance in each case. In Beams and Channels the market has been active, but no marking up has taken place and the same holds good of Sheets. Specifications for a local business block for which about 1000 tons of material would have been required have been withdrawn owing to the high quotations on material.

**Old Material.**—The market has been livelier during the past week than for several weeks past. The supply shows but little improvement, but a betterment is visible in the buying, although it is made up largely of small lots to meet immediate demands. Quotations are as follows: No. 1 Wrought, \$18; No. 1 Cast, \$12.50; Steel Melting, \$15; Car Wheels, \$16; Iron Rails, \$20; Borings, \$9.50; Turnings, \$11.

## Birmingham.

BIRMINGHAM, ALA., May 29, 1899.

So much secrecy doth hedge about the sales that are being made that it is an extremely difficult matter to get the cold facts from first hands. The sales during the past week were not as large as those of the preceding week, but this was because the sellers did not care to and could not meet the demand. In fact that is now beyond their ability. There is very little space in the order books unfilled for any part of the current year. One interest reports that for No. 2 Foundry they can take no orders, big or little, short of September delivery. Another can take no further orders for Gray Forge for the remainder of the year. And another will tell you their anticipated output for the year is sold. Thus it goes. The grades that can yet be obtained are ragged and the sales are correspondingly so. Of the stocks reported in furnace yards in Georgia and Alabama (approximately 20,000 tons), three-fourths of the amount—say, 15,000 tons—is held by one interest in this district. This is the only interest prepared to fill orders for ordinary tonnage for prompt or nearby delivery. They could easily get rid of the entire lot in one sale, but prefer to carry to accommodate the current needs of their small customers. One straight lot of 1000 tons No. 2 Foundry offered ten days since by its outside owner at \$11.75 cannot now be had under \$12.50. That is the price at which that grade should be quoted, though indications are strong that it will be further advanced before this is printed. Gray Forge is quoted at \$11.25, but one can consider himself fortunate if he gets it at \$11.50. No. 3 sold in a limited way at \$11.75, but now \$12 would be considered reasonable. There has been a fine inquiry for Basic Iron and information has leaked of some sales. One cannot verify the assertion, for the records are a sealed book, but it's a safe guess to quote the price at \$12.25. The belated buyers now coming in are just literally compelled to have the Iron. The price, therefore, doesn't cut any figure compared with the certainty of an accepted order. The probability of a serious famine in the Iron supply next month grows more apparent every day. There has developed a new feature in the sales of Iron called Warrant sales, though not literally so. Many buyers for forward delivery have stipulated that the Iron should be delivered at maturity of contract to the Warrant yards and Warrant certificates issued against it. Of course the Warrants can be hypothecated and money obtained, and the Iron held as a reserve stock against possible necessities, if not needed when contract matures. But there is a greater or less appearance of speculation in this movement and it will command attention. Practically it is legitimate dealing in forward delivery, while at the same time it can develop into speculative dealing in Warrants. It is only of late that this feature has noticeably developed. As yet it has not attained any serious proportions. Some complaint has been made of dilatory deliveries, but at the bottom of it is the worry produced by exhausted stock piles of consumers. In some cases settlements have been mutually agreed upon, but not to any serious extent. Shipping clerks are on the rush to expedite deliveries. At the Warrant yards it is still all outgo and the vacant places made are not being filled. There are shipping orders for the withdrawal of several thousand tons, and the report on June 1 will show a serious depreciation in the stock.

The first sale of Steel Billets by the Alabama Steel &



Shipbuilding Company was made to the Bar, Rod & Wire Nail Mill a few days since at \$23 per ton, for delivery, it is said, in October. The sale was 10,000 tons of 4-inch Billets. At the time of the sale the Pittsburgh market was \$27. The sale is significant only in that it indicates that such progress has been made in the erection of the Steel mill that a pretty near approximation of the time of its starting can be had. The other plants in connection with it are making rapid progress and great confidence is felt that before frost comes they will all have their wheels turning. The improvements and repairs to the furnace plant at Ensley are about practically completed and the Tennessee Company will soon have 15 furnaces in operation, an increase of four. The Sterling Company of Pittsburgh are near the completion of the erection of the large battery of boilers for the Sloss Iron & Steel Company. The latter have all four furnaces in operation now, which have an estimated monthly output of 20,000 tons. The Vanderbilt Furnace is nearing the completion of its repairs with the prospect now of blowing in the latter part of next month. Some eastern parties who have the reputation of possessing and commanding capital, dropped in on us recently "with no intent on business." But it so happened that a good deal of their time and attention was devoted to an examination of the Trussville Furnace and the Ore and Coal lands attached thereto. Their departure was soon followed by that of the local resident credited with the management of the deal. While nothing definite can be said of it the inference is fair that negotiations are in progress. There is nothing yet definitely announced concerning the two furnaces said to be contemplated by John W. Harrison. But the latter has leased certain Ore lands in the vicinity of the location said to be selected for the furnaces. There is considerable manipulation and trading going on and deeds have been made for valuable parcels of mineral and Coal properties. But they must undergo the test of legal scrutiny before acceptance and payment of purchase money to complete the deal. They are therefore withheld, awaiting final action.

The leading officials of the Birmingham Southern Railroad have been in New York the past week completing the final transfer of that property to the Louisville & Nashville and the Southern railroads. This new possession gives them a complete and undisputed control of the mineral field in this district. Our minor industries are still full of work. Business with them until fall is now assured. The rolling mill is yet in the hands of the court and will be until the sale is completed by the final payment by the Republic Iron & Steel Company of the amount agreed upon. The impression prevails that this company will concentrate all their interests here at Thomas.

(By Telegraph.)

The demand has increased again, and the market is hardening. Sales of all grades have been made at prices 25c. to 50c. higher. Buyers contend less about price now than when market was \$3 lower. Inquiries cover large as well as small lots.

## New York.

Office of *The Iron Age*, 232-238 William street, }  
NEW YORK, May 31, 1899. }

**Pig Iron.**—The market has strengthened further, but outside of a 5000 ton lot, for delivery at Schenectady, taken by a Schuylkill Valley furnace, no large blocks have been placed. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, \$16.75 to \$17.25; No. 2 X, \$16.25 to \$16.50; No. 2 Soft, \$15.75 to \$16; No. 2 Plain, \$15.50 to \$15.75, and Gray Forge, \$15 to \$15.25. Southern brands are quoted: No. 1 Foundry, \$16.25 to \$16.50; No. 2 Foundry, \$16 to \$16.25; No. 1 Soft, \$15.50 to \$15.75; No. 2, \$15.50 to \$15.75, and Gray Forge, \$14.75 to \$15.

**Cast Iron Pipe.**—Among the contracts coming up in the near future are 400 tons for Albany, 1000 tons for the Aqueduct Commission, New York, and 1300 tons for North Braddock, Pa. It is noted that there is quite an inquiry for small lots of Cast Iron Pipe to go to Cuba.

**Steel Rails.**—Only a business in small lots is being done by the Eastern Rail mills, on which anywhere from \$26 to \$28 is realized. Seconds have sold lately as high as \$25 at mill.

**Track Fastenings.**—We quote Angle Bars, 1.40c. to 1.50c.; Spikes, 1.70c. to 1.80c., and Bolts and Nuts, 2.10c. to 2.20c.

**Structural Material.**—The Beam manufacturers are to meet in this city to-morrow to discuss the question of advancing prices. Business continues good. Among the contracts recently closed is one lot of 800 tons for the

Park & Tilford Building, and three lots of 500 tons each for school houses and apartment buildings. Plates have been advanced again, and Steel Bars are higher. We quote as follows: Beams 1.63c. to 1.75c.; Angles, 1.63c. to 1.70c.; Universal Mill Plates, 2.30c. to 2.35c.; Tees, 1.70c. to 1.75c.; Channels, 1.63c. to 1.75c. Steel Plates are 2.30c. to 2.35c. for Tank, 2.45c. to 2.50c. for Shell, 2.65c. to 2.70c. for Flange, 2.70c. to 2.75c. for Fire Box and 2.75c. to 2.90c. for Locomotive Fire Box, on dock. Refined Bars are 1.60c. to 1.65c., and Common Bars at 1.45c. to 1.50c., on dock. Soft Steel Bars, 1.85c. to 1.90c.; Steel Axles, 2c. to 2.10c.; Scrap Axles, 1.90c. to 2c.; Links and Pins, 1.65c. to 1.70c.; Hoops, 1.95c. at mill; Best Iron Boiler Rivets, 2.25c. to 2.50c., delivered; Steel Structural Rivets, 1.85c. to 1.90c.; Cotton Ties, 95c. a bundle at mill.

## Metal Market.

Office of *The Iron Age*, 232-238 William street, }  
NEW YORK, May 31, 1899. }

**Pig Tin.**—Business during the last week has been very dull, and prices scarcely changed. Owing to a holiday yesterday the exchange was closed, and business in the metal trades practically suspended both on Monday and Tuesday. The closing price of Pig Tin ranged between 25.65c. and 25.75c. These were the ruling bidding and selling quotations. The London market was firmer and more active than this market, and at the close to-day spot is quoted £117 18s. 9d. and futures £118 11s. 3d.

**Copper.**—The market was very quiet, and quotations while unchanged are but nominal. Very little business went through during the last week. This was all transacted in small quantities. Lake Superior Ingots are still quoted nominally at 18½c. A certain concern have even shaded this a quarter in quoting for spot. Electrolytic, Cakes, Wire Bars and Ingots are quoted 17½c., and Casting Copper is steady at 17¼c. In London the speculation was quiet, but prices for spot declined, while futures advanced, and the discount was reduced to only 7 shillings and 6 pence. At the close to-day spot was quoted £76 12s. 6d., and three months' futures £76 5s. Best Selected has declined £1, and was closed to-day £79 10s. Exports from here have been very small this month, and amount to but 5000 tons.

**Pig Lead.**—We have not heard of any business this week, with the exception of transactions which went through in a very small way. The market is now quoted 4.45c. to 4.50c. St. Louis is in the same state, and quotations telegraphed at the close to-day were 4.30c. to 4.35c. London is unchanged at £14 2s. 6d.

**Spelter.**—Is very weak, and spot is now quoted 6.75c., but futures are obtainable at 6.50c. Buyers are very shy. The Ore market is weaker but is not being actually quoted. London remains unchanged and the closing cables to-day came £28 11s. 3d.

**Antimony.**—There has been no change. The metal still maintains its strong position. Hallett's is quoted 10c. and Cookson's 11c.

**Nickel.**—Is firm and without change as regards to price. It is difficult for the sellers to procure this metal, and although the only business doing is in very small lots the position is very firm. Canadian Nickel is quoted 38c. to 40c. for lots larger than 1000 lbs., and 40c. to 50c. for smaller quantities.

**Tin Plate.**—Prices remain unchanged in spite of the extremely strong conditions with which the company are meeting in the Steel market. The American Tin Plate Company are still quoting 100-lb. Cokes, New York delivery, on a basis of \$4.05 to \$4.10. The company are now at work dismantling several of the smaller plants which were taken into the company, and distributing the machinery in various of the larger plants, where it is much needed at present. During the last week, we understand, a delegation of the officials visited the Somerton Tin Plate Works, formerly owned by Somers Bros., in Brooklyn. It is said that this will be the next plant to undergo the dismantling process. An advance of about 25c. a box has been made on Black Plate and Taggers Iron. The position in England is still said to be very strong, and in consequence a little of the business which might have gone to the other side, in view of the advantages of the drawback rulings, is being kept here.

**Another Egyptian Order.**—The Pressed Steel Car Company of Pittsburgh have secured a second order from the Egyptian Railroad Company of Alexandria, Egypt, for 200 steel cars, each of a capacity of 100,000 pounds. The Pressed Steel Car Company shipped last week to the Egyptian Railway Company 100 steel cars.

## QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING MAY 31, 1899.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$47,100,000	Am. S. & W., Common.....	64,415	60½-61½	59½-61½	59½-62	.....	.....	58 -61½
38,150,000	Am. S. & W., Pref. (7% Cu.)....	14,630	95½-96½	93½-95½	95½-96	.....	.....	94 -96½
9,250,000	Col. Fuel and Iron.....	2,520	44½-46	44½-46	44½-45½	.....	.....	41½-44½
46,484,300	Federal Steel, Common.....	66,810	58 -59½	58 -58½	57½-58½	.....	.....	54½-57½
53,253,500	Federal Steel, Pref. (6% Non-Cu.)	14,165	80½-80½	80½-80½	80½-80½	.....	.....	78½-81
20,000,000	Tennessee Coal and Iron.....	32,270	56½-58	57½-58½	57½-58½	.....	.....	56½-59
.....	Cambria Iron, Phila*.....	413	44½-44½	44½-44½	44½-44½	.....	.....	45
.....	Cambria, Steel***.....	7,385	19½-20½	19½-20½	19½-20	.....	.....	19½-20
5,000,000	Penna. Common, Phila.....	100	.....	.....	.....	.....	.....	-74
1,500,000	Penna. Pref., Phila.....	.....	.....	.....	.....	.....	.....	.....
28,000,000	Tin Plate Common, New York..	8,410	33½-35½	34½-36	34½-35½	.....	.....	34 -36
18,000,000	Tin Plate Pref., N. Y. (7% Cu.)..	1,160	.....	84	82½-83	.....	.....	81½-83
28,000,000	Tin Plate Com., Chic.....	4,302	33½-35½	34½-35½	35½-35½	.....	.....	34½-36
18,000,000	Tin Plate Pref., Chic. (7% Cu.)..	853	82½-83½	82½-83½	.....	.....	.....	82 -83
32,000,000	National Steel Common, Chic.....	4,380	46 -48	46½-47½	46½-47	.....	.....	46 -47½
27,000,000	National Steel Pref., Chic. (7% Cu)	290	85½-87	.....	87	.....	.....	87 -87½
32,000,000	National Steel, Common, N. Y.....	6,220	46½-48½	47 -47½	46½-47	.....	.....	45 -47½
27,000,000	Nat'l Steel, Pref., N. Y., (7% Cu.)	2,365	85½-87½	86½	86½	.....	.....	86½-88
7,500,000	Bethlehem Iron**.....	2,588	-105	+59½-60	+59½-61	.....	.....	+60 -61
.....	Bethlehem Steel Rights.....	3,194	.....	21 -22½	21½-22½	.....	.....	-21½
12,500,000	Pressed Steel, Common.....	2,820	45½-47	47 -49	49½-50	.....	.....	45 -47
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	1,635	-78	-79	.....	.....	.....	78 -79½
19,000,000	Am. Steel Hoop, Common.....	2,935	26½-27	27 -28	-26½	.....	.....	26 -26½
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)..	530	-72	72 -72½	-72	.....	.....	72 -72½
.....	Am. Car & Foundry, Common..	4,125	21 -21½	30 -31½	-20	.....	.....	20 -20½
.....	Am. Car & Foundry, Preferred..	719	64½-65	.....	.....	.....	.....	63 -64

\* Par \$50. \*\* 6% guaranteed by B. S. Co. \*\*\* \$1.50 per share paid in. † Ex-Rights. Late Philadelphia and Chicago sales by telegraph.

**Bonded Indebtedness:** Am. S. & W., \$730,000; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., \$13,200,000; Illinois 5%, \$7,417,000; E. J. E. R. R. 5%, \$1,600,000; Johnson 6%, \$8,732,000; D. & I. R. R. 5%, \$1,000,000; 2d D. & I. R. R. 6%, \$10,000; land grant D. & I. R. R. 5%; National Steel, \$2,561,000; Tennessee C. & I. R. R. Co., \$8,367,000; 6%, \$1,114,000; 7%, \$1,000,000; 7% cu. pref.; Pennsylvania Steel, \$1,000,000; Steelton Ist; \$2,000,000; Sparrow's Point Ist, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000.

## The Brooklyn Navy Yard Improvements.

WASHINGTON, May 29, 1899.—The Navy Department has settled a number of important details with regard to the reconstruction of the Brooklyn Navy Yard. It has been decided to subdivide the work and to invite competition of builders and manufacturers as rapidly as the plans and specifications can be prepared. The first work to be undertaken will be the enlargement of the present electric light and power building, which is in process of construction, the purpose being to so increase this feature of the plant that the entire yard can be lighted from it without utilizing any of the electric power to be generated for driving the machinery, cranes, &c., in the various buildings. This extension embraces the construction of a building 114 feet 10 inches by 61 feet 4 inches, containing foundations for three boilers and one electric generating set. In addition to the necessary foundations, wire ducts, ventilators, &c., the contractor will be required to install in the fire room a narrow gauge railway track, 21½ inches gauge outside of rail heads.

The next building to be advertised will be the power house in the quadrangle in the rear of the machine shop referred to in this correspondence last week. Proposals will be received for the construction of this house and for furnishing and installing the generators, boilers, &c., called for by the specifications. Advertisements covering this feature of the plant will probably be issued in about ten days.

The plans and specifications covering the administration building and the pattern shop and storerooms will follow and will be ready for examination within the next fortnight. These details are in the hands of the Bureau of Yards and Docks, and while they are being perfected the Bureau of Steam Engineering will get out the drawings and specifications for the cranes which are to be employed in the machine shop, boiler shop and smithery. The specifications for big tools will come next and it is authoritatively stated that the Department will specify special makes of tools wherever it appears to be an advantage to the Government to do so. These tools will be advertised for in one lot. The next lot will embrace small machine tools, including 36-inch lathes and under. Appropriate quantities of hand tools and appliances will be included in each lot of machine tools. It is the purpose of the Bureau of Steam Engineering to equip the new plant with the very best tools obtainable, and to employ up to date labor saving devices wherever possible. While the Department will insist upon purchasing all these fittings at the lowest market rates under competition, the interesting calculation has been made that considering the rate which the Government can procure money and the average rate of depreciation of tools and machinery, the Department can afford to pay \$11 for an appliance for which private plants would not be justified in paying more than \$8. This statement should not be misconstrued into a suggestion that the Department is prepared to pay more than a private concern for the same article, as it is intended merely to mean that the Government can afford to buy a better article than a private firm.

W. L. C.

## Iron and Industrial Stocks.

The closing of the Stock Exchange Monday and Tuesday may account for much of the lightness of the week's sales, all of the above stocks showing decreased sales except Steel and Wire, which alone shows sales considerably in excess of last week. Quotations generally are slightly lower and in some instances several points; Tin Plate, common, however, shows an advance.

The change in the quotation of the Bethlehem Iron Company's stock from 104 to 60 is due to the stock now being sold "ex-rights."

The American Car & Foundry Company stocks made their first appearance on the Stock Exchange last Thursday, and accordingly appear this week in our formal schedule.

The Pressed Steel Car Company of Pittsburgh at their June meeting will declare the second quarterly dividend of 1¼ per cent. on the preferred stock. The operation of the company to date fully warrants the estimate that over \$1,200,000 will be earned during the first six months of this year, and at the fall meeting the question of declaring a dividend on the common stock will be considered.

Closing quotations on a number of industrial stocks are as follows:

	Bid.	Asked.
International Silver, Common.....	16	17½
Mich. Peninsular Car, First 5s.....	113	116
Otis Elevator, Common.....	35	36½
Otis Elevator, Preferred.....	88	89½
H. R. Worthington, Common.....	50	55
H. R. Worthington, Preferred.....	112	126
Cramp's Shipyard Stock.....	80	85
Pratt & Whitney, Common.....	3½	5
Pratt & Whitney, Preferred.....	38	48
E. W. Bliss, Common.....	138	...
E. W. Bliss, Preferred.....	125	...
U. S. Projectile.....	90	95
Barney & Smith Car, Preferred.....	90	98
Park Steel Co.....	109	...
International Pump, Common.....	26	28
International Pump, Preferred.....	66	68
Republic I. & S., Common.....	17	18½
Republic I. & S., Preferred.....	59	61

**The Standard Metal Company.**—Options on the plants which were to form the Standard Metal Company expire June 1 at 3 o'clock. We understand that the consolidation will not go through.

Five thousand workmen employed in the building and iron trades in Copenhagen, Denmark, have struck for an eight-hour day and an increase in wages. Serious trouble is feared in consequence and the troops have been called out.

A great strike is reported in progress at the great foundries and engineering works at Le Creusot, in the Department of Saone and Loire. Four thousand workmen are already out and it is expected that 10,000 will soon be on strike. The works are at a complete standstill.



## Selling Pig Iron by Warrant.

George H. Hull, president of the American Pig Iron Storage Warrant Company of New York, has made an interesting comparison of the results obtained by selling pig iron by warrant on the Exchange as against those obtained by selling pig iron to consumers in the regular way, the sales in both cases being based on \$12 for May. The customary manner of selling by warrant for future delivery, on Exchange, is to add  $6\frac{1}{4}$  cents per ton for each future month. This makes the average price for delivery during the balance of the year \$12.21 $\frac{1}{2}$ , as shown in the following table. Allowing two days after iron is made to put it in yard and get the yardmaster's certificate for it, two days for this certificate to reach New York, and one day to turn it into a warrant and make delivery of the warrant to buyer, in exchange for his certified check, iron can be turned into money within five days from the time it is made. There must be deducted, therefore, 1 cent for five days' interest between production and payment. Since the commission on Exchange sales is  $6\frac{1}{4}$  cents per ton, this amount, too, must be deducted. On iron sold by warrant furnace companies are required to put 2268 pounds in yard. When this is delivered out of yard it is weighed out 2240 pounds and the surplus weight returned to the furnace company. The average weight the Warrant Company have returned to furnace companies is 18 pounds per ton, which Mr. Hull estimates at 9 cents, thus making the total cost \$12.23 $\frac{3}{4}$ , as shown in the following table:

## Result of Selling Pig Iron by Warrant.

By warrant you get for—	
May delivery.....	\$12.00
June delivery.....	12.06 $\frac{1}{4}$
July delivery.....	12.12 $\frac{1}{2}$
August delivery.....	12.18 $\frac{3}{4}$
September delivery.....	12.25
October delivery.....	12.31 $\frac{1}{4}$
November delivery.....	12.37 $\frac{1}{2}$
December delivery.....	12.43 $\frac{3}{4}$
Average price.....	12.21 $\frac{1}{2}$
Deduct for 5 days' interest between production and payment.....	0.01
Deduct for exchange commission.....	0.06 $\frac{1}{4}$
	0.07 $\frac{1}{4}$
Net price of iron sold by warrant.....	12.14 $\frac{1}{2}$
Value of iron returned to furnace by Warrant Company, average 18 pounds.....	0.09
Total.....	\$12.23 $\frac{3}{4}$

The customary manner of selling iron to consumers is to make the same price for the whole delivery. When iron is sold to consumers in the regular way it takes an average of 60 days from the time it is made to realize the money. This figures out 12 cents per ton. The commission on sales to consumers is  $2\frac{1}{2}$  cents, which on \$12 is 30 cents per ton. Then the seller must take the risk of collection, or pay a commission usually of 1 per cent, for guaranteeing. Then disputes as to grades and weights occur frequently on sales to consumers, and as a general thing the seller is obliged to make the deduction asked, in order to get settlement, as the buyer has both the iron and the money. These deductions and the delay they cause in settlement are estimated by Mr. Hull at 5 cents per ton.

Summarized, these items produce the following result:

## Result of Selling Pig Iron to Consumers.

By sale to consumers you get for all deliveries.....	\$12.00
60 days' interest between production and payment.....	0.12
Commission selling ordinary way, $2\frac{1}{2}$ per cent.....	0.30
Commission guaranteeing sale, 1 per cent.....	0.12
Percentage of loss in dispute of grade and weight.....	0.05
	0.59

Net price of iron sold in regular way..... \$11.41

In this way Mr. Hull figures out that there is an advantage in selling by warrant of 82 $\frac{1}{2}$  cents.

The failure is announced of Neilson Brothers of Glasgow, one of the most important firms in the iron and steel trade of the United Kingdom. The cause of the failure is due to the fact that they had long beared Glasgow pig iron and were heavily oversold when the corner in warrants was engineered. The concern lost \$1,250,000 last year. The firm were the largest dealers and exporters of ship plates in Scotland.

The Fullerton Rolling Mill Company, with principal office in the New Jersey Corporation Guarantee & Trust Company Building, Camden, N. J., have been incorporated for the manufacture of iron and steel. The capital is \$150,000 and the incorporators are Chester R. Baird, Andrew Hawthorne, Nicholas H. Wagner.

A shipment of Peoria harvesters, now being made from Peoria, Ill., to the Argentine Republic, comprises 77 carloads, and is said to be one of the largest shipments of agricultural machinery ever made from this country to South America.

## Republic Iron and Steel Company.

The following is the full list of officers elected and appointed: R. S. Warner, president; Geo. D. Wick, first vice president; Samuel Thomas, second vice president; James C. Corns, third vice president; Geo. M. Bard, fourth vice president; S. J. Llewellyn, secretary; J. F. Taylor, treasurer; Harry Rubens, general counsel; Geo. M. Bard, general purchasing agent; Geo. A. Baird, general sales agent; Y. B. Haagsma, general auditor.

General offices: Stock Exchange Building, Chicago.

*Southern District*: W. H. Hassinger, district manager; D. M. Forker, district treasurer. Office: Birmingham, Ala.

*Valley District*: Jas. Campbell, district manager; H. W. Heedy, district treasurer. Office: Youngstown, Ohio.

*Northern Ohio District*: J. C. Corns, district manager. Office: Massillon, Ohio.

*Gas Belt District*: W. L. Simonton, district manager. Office: Muncie, Ind.

*Ohio River District*: Geo. M. Clark, district manager. Office: Cincinnati, Ohio.

*Southwestern District*: T. A. Meysenburg, district manager. Office: St. Louis, Mo.

*Chicago and Northwestern District*: Wm. B. Ridgely, district manager. Office: Stock Exchange Building, Chicago.

The Standard Oil Company, having acquired the old Russian title as well as a later mineral grant from the United States Government to the coal lands at Cook's Inlet, Alaska, are making preparations to develop the coal fields, which are said to be of great extent. Surveys are being made for railways from the mines to the shore, and the Standard Company's engineers are now engaged in completing this work. The Cook's Inlet coal mines were worked many years ago by the Russian Government, and later by a San Francisco company, but lack of funds to prosecute the work caused its temporary abandonment.

So successful has been the experiment of supplying the California valleys with electrical power from the foothills of the Sierras that the Standard Electric Company, who get their power from Blue Lakes, are about to double their plant. At present the main service is at Stockton, in the San Joaquin Valley, but within a few months wires will be extended to San Francisco. It is believed that the comparatively cheap power thus provided will result in considerable industrial development in San Francisco.

The annual report of the business of the Suez Canal for the year 1898 shows that 3503 vessels, of an aggregate tonnage of 12,962,631, passed through the canal last year, as against 2986 vessels and 11,123,403 tonnage in 1897. Of the totals about two-thirds is represented by British vessels. Among the nationalities whose flags were represented by vessels passing through the canal Germany came second and France third, followed by Holland, Austro-Hungary, Japan, Russia, Italy, Spain, Norway, Turkey and Denmark in the order named. The United States were represented by four vessels and a total tonnage of 3161.

The monthly foreign trade returns of the Treasury Bureau of Statistics, just issued, for April, 1899, show the largest volume of manufacturing exports for any month but one in the history of the United States, the exception being the immediately preceding month of March. The total value of exports of manufactured goods in April last was \$33,015,970, an increase of more than \$7,000,000 over April, 1898, but a decrease of \$3,000,000 from March, 1899. For the first four months of the current calendar year the exports of American manufactured goods have reached \$119,000,000, or at the rate of \$357,000,000 a year, which will be an unrivaled record. The highest previous record was for the calendar year 1898, when manufacturing exports reached a total of nearly \$308,000,000, an increase of more than \$28,000,000 over the preceding year.

The Spanish-American Mining Company, with \$10,000,000 capital, have been incorporated under New Jersey laws to do a mining business in Porto Rico and to acquire mines in Spain. The incorporators are Charles Efron, Vincent P. Savers, Francis C. Travers, Joseph D. Savage and Benj. Tuska, all of New York; Jose Ramon Latimer, San Juan; Pedro Sampisleben y Charvarri, San Juan, and G. P. Nelder, Stanwood, N. J. The Porto Rican mines are located near San Juan. The company do not intend to take up the manufacture of iron and steel, but will ship ore to the steel companies on the Atlantic Coast of the United States. The ore is said to be of a high grade.

### A Link in Early Locomotive History.

An extremely interesting chapter in the early history of the locomotive engine has lately come to light in the shape of a record of the work done by one of the very first firms that undertook its construction. This was the firm of Mather, Dixon & Co., who so long ago as November, 1826, established works known as the Bath Street Foundry, in Bath street, Liverpool. Like many other firms who afterward played a part in the development of the locomotive engine, the firm commenced as builders of marine and stationary engines. Steam navigation, especially in the shape of small vessels for coasting traffic, was then coming rapidly into favor, while the rise of the Lancashire cotton trade and the general expansion of business about that time caused a large demand for stationary engines for various purposes.

Determined to avail themselves of the economy of steam power in moving the heavy weights required in such a business, Mather & Dixon completed in February, 1827, a small locomotive having four 3-foot wheels, both pairs being coupled; two four-wheeled coupled locomotive cranes, and a steam traveler or traverser, all for their own use. These orders, if they can be called such, were numbered one to four in the books, and when after an interval of some years locomotives were really ordered, they were numbered in rotation after these first four early productions. Among the many American lines which obtained engines from England in those halcyon days of our export trade was the Petersburg Railroad, a local line running southward from Richmond, in the State of Virginia. This line had purchased from Edward Bury, also a Liverpool engineer, his Liverpool engine, in 1831, which was a four wheeler with inside cylinders, bar frames and high topped circular fire box of the afterward well-known Burt type. The Americans wanted two more of this class, and also a four-wheeled single driver passenger engine similar to the Liver, which he made for the Liverpool & Manchester Railway in 1832. Being too busy, Mr. Bury had this order passed on to Mather, Dixon & Co., who sent the three engines out at the end of 1833 and beginning of 1834. The coupled engines were the New York and the Philadelphia. They had cylinders 10 x 16 inches; wheels, 4 feet 6 inches in diameter; 90 2¼-inch tubes, giving 396.18 square feet of heating surface, and fire boxes 30 inches long, 40 inches wide and 39 inches high, with 42.8 square feet of heating surface, or practically 439 feet in all. The passenger engine was named Petersburg, and was of precisely similar dimensions, except that the driving wheels were 5 feet 6 inches and the cylinders 12 x 20 inches. These made Nos. 5, 6 and 7 in their makers' books. It may be added that their boilers were 32 inches in diameter and 7 feet 4 inches long, and the cylinders inside. Soon after, in 1834, the firm built four small engines for the Liverpool dock lines, with four wheels only 2 feet 10 inches in diameter, and outside cylinders. These formed Nos. 8 to 11, and were built from the designs of John Grant-ham, the chief draftsman. The same year saw two locomotive steam cranes built for the Birkenhead docks, and a coupled four-wheeled engine, No. 14, for the Haydock Colliery, near St. Helen's. In 1835 four small coupled four-wheeled machines, no particulars of which seem to be known, were built for the War Department, as well as three others of the same kind for the Russian Government, the last bringing the engine numbers up to 21. The firm, in fact, seem to have made rather a speciality of this type of locomotive even at that early date, for their No. 22, named Wigan, was of this class, for the Parkside & Wigan Line, better known later as the North Union. The Duke of Bridgewater also had two of these little four wheelers in 1835 and 1836, no doubt for use in connection with his canals, and another, No. 25, was for the Worsley Colliery. It may, perhaps, be assumed that some of these engines had tanks, though the fact does not appear certain, except as regards the first four made for the firm's own use.

It was not until 1836 that Mather & Dixon commenced building six-wheeled engines, their No. 26 being a coupled behind for Mr. Hargreaves of Bolton, who worked some short lines in that neighborhood. During that year they got out designs for four classes of engines, which were for a time their standard patterns, although the march of improvement was so rapid just then that no maker's standard remained so for long. The four engines in question, Nos. 27 to 30, were respectively—all being six wheelers—a single driver passenger locomotive, a coupled in front engine, a six coupled goods and a coupled behind. There were, in fact, two of the latter, making five engines, which were kept to show to intending customers, both as to the capabilities of the different types and as proofs of the good design and handiwork of the makers. They were often sent away to various lines to be experimented with, and were considered to have answered their purpose as locomotive advertisements very well. Finally they were all sold to an

agent at Manchester, and their after careers seem at present unknown.

A somewhat larger share of the many orders for locomotives which must then have been going begging fell to Mather & Dixon in 1836, 1837. For instance, they supplied six engines to the Liverpool and Manchester, and six to the London and Birmingham, though four of the latter were not sent till 1838. Of the first named, engines 32 and 33 of their make were 5-foot coupled in front goods, named Hercules and Thunderer, respectively. These engines had cylinders 15 x 16 inches, 97 or 98 tubes of 1½ inches in diameter, giving about 370 square feet of heating surface, while there was some 43 feet more surfaces in the fire box. Whishaw makes the Hercules a four-wheeled engine, but this may pretty safely be considered an error, the maker's notes being much better evidence. The remainder of the order, engines 34 to 37, were of the short stroke variety of 5-foot single passenger engines. Six more were also built by other firms, but the system did not answer, the cylinders being only 14 x 12 inches. These engines—Dart, Arrow, Meteor and Comet—had boilers 3 x 7½ feet, 100 tubes of 1½ inches, about 341 feet of tube surface and 38 feet of fire box surface. Even then they were reckoned small for six wheelers, weighing scarcely over 12 tons in working order.

The London and Birmingham engines, Mather & Dixon's 38 and 39, and 46 to 49, were built to Bury's designs, part of a large order, much of which he had executed by firms other than his own. They were of the usual Bury type, 5 feet 6 inches four wheeled passenger engines, with 4-foot leading wheels; boilers, 3½ x 7 feet; 90 tubes of 2¼ inches in diameter, 396.18 square feet of tube surface, 30.66 feet of fire box surface, cylinders 12 x 18 inches, and weighing hardly 12 tons full. In contrast to these pigmies two 7-foot single engines for the broad gauge of the Great Western followed, reaching their destination early in 1838. These were Premier and Ariel, their builders' 40 and 41, and were soon followed by 50, 51 and 52, which were 8-foot engines, named Ajax, Planet and Mercury. As they all had only 14-inch cylinders, and but 377.34 square feet of total heating surface, they were of little use, but being different from the engines of all other lines they gratified the vanity of Mr. Brunel and the locomotive committee he directed.

Meanwhile Mather & Dixon had sent an engine named England, their No. 42, to the Tsarskoe Selo Railway, near St. Petersburg, a 6-foot single machine; while the Grand Junction had taken the next three, Hawk, Vulture and Hornet, in 1838, and two more, 62 and 63, Phosphorus and Hyperion, in 1840. All these were practically alike, 5 feet 6 inches passenger engines, with 3 feet 6 inches leading and trailing wheels, inside cylinders 13 x 18 inches—the last two only 12 x 18 inches—about 467 feet of tube and 46 feet of fire box surface. The last two engines formed part of a lot of 15 of the same general type, but with slight differences in some cases, which formed a new standard. These were built at new premises called the North Foundry, in William street, Bootle, to which the firm removed early in 1839. Of the other 13, No. 53 went to the Liverpool & Manchester, and was known as Victoria, while the Birmingham & Derby took the next three, and called them Barton, Tamworth and Hampton, after stations on the line. The North Midland had the next three, but they were somewhat singular in not naming their engines. A small export order now came in from a new quarter—viz., the Paris & Orleans Railway, which had another two, Nos. 60 and 61, named Bolton and Dixon. These had 6-foot driving wheels, then rather an unusual size on the standard gauge. Finally, the last four, Nos. 64 to 67, were absorbed by the Chester & Birkenhead Line in 1840.

The severe competition which had set in for the lucrative work of locomotive building began to tell very heavily about this time on the business of Mather & Dixon. No fewer than seven other firms were established in the same line at Liverpool or within a few miles of it. No more engines were turned out till 1842, although ten locomotive boilers were sent to the Liverpool & Manchester Company, at Edge Hill, during the interval. These were numbered 68 to 77, as if they had been complete engines, and the same plan was followed with ten more boilers sent to Crewe for the Grand Junction in 1843, which were Nos. 84 to 93. Meanwhile, in 1842, five single engines of the usual six-wheeled type, Nos. 78 to 82, were built for stock, followed by a coupled behind engine. The subsequent fate of these engines has not been traced, so far as we know. John Grantham, the chief draftsman, had now been taken into partnership and his name added to the style of the firm; but the change was of very brief duration. While two six coupled goods engines, Nos. 94 and 95, were still in hand, it was decided to discontinue business, as only loss had resulted for some time. Such, about 1844, was the unfortunate end of a firm of considerable mechanical ability, one which in its time took a fair share in the development of the locomotive engine.—*The Engineer*.



## The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, {  
New York, May 31, 1899. }

Although officially nothing can be ascertained reports have been floated with considerable persistence to the effect that an agreement of some sort has been reached between the Niles-Pond and Bement-Miles interests. During the last three years, it is said, the Niles interests have been endeavoring to bring about this condition, and our first intimation that the deal was again under way was received from the West last week. Brief mention was made in our Cincinnati machinery market report. Since then it has been pretty well talked of in the trade. One machinery merchant, we understand, has stated that he was informed at headquarters that the deal has been consummated. Reports from Philadelphia state that the Niles-Pond interests have purchased control of Bement, Miles & Co. Similar reports were also received from Plainfield, N. J., where the Pond works are located. No official confirmation can be received at New York. Col. Alexander Gordon, president of the Niles Tool Works Company, stated last week that it was all "in the wind" and that the rumors lacked authenticity. A stockholder in the Pond Machine Tool Company stated that although he was cognizant of the reports he knew that the affair had not gone through as yet.

Other members of the trade believe that if the deal has been closed or will be consummated the controlling interests in the Niles Tool Works Company and the Pond Machinery Tool Company will simply purchase control of Bement, Miles & Co. In this way the identity of the three concerns will be maintained. Outside reports state that it is intended to make an actual consolidation of the three concerns under one name and to issue \$6,000,000 of capital stock, divided into half common and half preferred. According to this view it is intended to place on the market little if any new stock, for it will be required as exchange for the old. Enough stock only will be sold to pay cash for some of the interests of Bement, Miles & Co. The present capitalization of the Niles Tool Works Company is said to be \$2,000,000 and that of the Pond Machine Tool Company \$500,000. Bement, Miles & Co. are not incorporated, but are said to be rated at about \$1,000,000.

Both Colonel Gordon and Vice-President R. C. McKinney of the Niles Tool Works Company have spent some time in the East lately, and it is said that their presence here was due to the negotiations which were pending in this matter. It is said that in the way of operation the three concerns will be under one set of officers.

It will be recalled that about a year ago we announced that the stockholders in the Niles Tool Works Company had purchased entire control of the Pond Machine Tool Works, making a virtual consolidation of these two concerns. The taking in of this third company mentioned would place under control of allied interests at least 75 per cent. of the large and heavy machine tool business of the country.

The annual meeting of the stockholders of the Pond Machine Tool Company for the election of directors and transaction of other business will, it is stated, be held at the office of the company on Tuesday, June 6.

A rumor on Liberty street last week put it that the Builders' Iron Company of Providence, R. I., had absorbed the Diamond Machine Company, also of Providence. The Diamond Machine Company inform us that "no such consummation of a sale has been made at present."

The Builders' Iron Company have wired us: "Have not absorbed the Diamond Machine Company."

W. E. Baker, general superintendent of the Manhattan Railroad Company, has sent out specifications calling for bids for 32,000 horse-power of boilers. This is one of the first definite steps which this company have taken toward purchasing material for equipping the elevated roads in this city with electric motive power. Mr. Baker stated to a representative of *The Iron Age* that no selection has been made as yet of a site for the proposed power-house and that no tenders had been called for any other material. The specifications sent to boiler manufacturers were simply to sound the market as to prices and deliveries and to bring forth the various plans and systems which the manufacturers might devise. The power station then built will generate considerably more than 32,000 boiler horse-power. The inference which may be gained from this move would indicate at least that this matter, which has been hanging fire for so long a time, is now coming to a head.

The Brooklyn Heights Street Railway Company have ordered from the B. F. Sturtevant Company forced draft apparatus for their 4000 horse-power boiler plant. The installation will consist of four fans direct connected to motors. The apparatus is to be used in the Kent avenue station. The offices of the company are located on Montague street, Brooklyn.

It is said that the Pennsylvania Steel Company are in the market for a 3000 horse-power boiler plant, to be installed in their works at Steelton, Pa.

The Buffalo Forge Company have through their New York office, 39 and 41 Cortlandt street, received a contract for a forced draft and drying apparatus from the Botany Mills, Passaic, N. J. The order includes five 130-inch full housing steel fans, each direct connected to a vertical enclosed type engine arranged to run in oil, also three special volume blowers equipped with copper blades.

McClave & Hamilton, 141 Broadway, were awarded the contract for the engines direct connected to generators from the North River Heat, Light & Power Company of Hoboken, N. J. They have also booked an order for an interesting electric lighting outfit for the Delta Psi Fraternity House of the Alpha Club of this city.

The Cleveland City Forge & Iron Works have received from the Continental Iron Works of Greenpoint, L. I., an order for a train of 22-inch corrugating rolls. They have also booked an order for the De La Vergne Company for a crank shaft weighing 11 tons.

An addition is being built to the works of the Stanley Electric Mfg. Company, at Pittsfield, Mass.

Reports have been circulated stating that the New York Shipbuilding Company, whose main offices are located in the Witherspoon Building, Philadelphia, had decided to locate the plant for which they are now purchasing equipment at Camden, N. J. This report was based on the fact that certain concessions have been offered the company by the municipality of Camden. President Henry G. Morse of the company stated, however, that they had not decided on the location as yet.

President Callaway of the New York Central Railroad has given authority to the engineering department to prepare for the building of a 3,000,000 bushel steel grain elevator. The elevator is to be located at the old West Shore terminal at Weehawken, N. J. A number of large piers will also be built.

Another advance of 10 per cent. was made by the National Association of Pump Makers, including principal builders of small pumps.

An addition is being built to the plant of the Springfield Machine Tool Company of Springfield, Ohio. P. E. Montanies is president of the company.

Bids were opened for the erection of several buildings for the Immigrant Station, Ellis Island, New York, by J. K. Taylor, supervising architect, Treasury Department. They were as follows: W. G. Triest, New York, \$94,500; P. J. Conlin & Co., Brooklyn, \$104,900; John Thatcher, Brooklyn, \$115,790; L. L. Leech & Son, Chicago, \$87,860.

Following are the bids received for heating and ventilating plant for the Immigrant Station, Ellis Island, New York: E. P. Bates of Syracuse, \$84,000; Walker & Chambers, \$79,489; G. A. Suter & Co., \$71,500; Gillis & Geoghegan, \$72,200; W. N. Tobin, \$82,600; Frank Dobson, \$78,400; New York Steam Fitting Company, \$75,000; Evans, Almira & Co., \$81,521; E. Rutzler, \$71,512; Blake & Williams, \$74,545; Baker, Smith & Co., \$73,246, and Francis Bros. & Jellett, \$77,300, all of New York City.

## The Douglas Furnace.

(By Telegraph.)

PITTSBURGH, May 31, 1899.—W. P. Snyder of Pittsburgh, iron and steel merchant, with Jos. G. Butler of Youngstown and other parties, have formed the Shenango Furnace Company, and have purchased the old Douglas Furnace, at Sharpsville, Pa., formerly operated by Pierce, Kelly & Co., but more recently operated under lease by Corrigan, McKinney & Co. of Cleveland, Ohio. The furnace has been recently repaired and put in good condition, and will blow in about June 5. The daily capacity will be about 225 tons of Bessemer pig. The Carnegie Steel Company, Limited, took possession of the furnace some time ago on a claim, and intended to operate it, but the former owners redeemed the furnace and sold it to Mr. Snyder and his associates.

A correction should be made in the article on "Pig Iron Analysis," appearing in *The Iron Age* for May 18, page 8. In paragraph beginning "Hole 11" the "Bramble method" is mentioned. It should be "Bambers method." A description of this method can be found in the "Jour. of the Amer. Chem. Soc." XIX, No. 2, February, 1897, in an article written by Andrew A. Blair on "The Determination of Sulphur in Pig Iron." In the table of results on page 10, *The Iron Age*, May 18, the second line reading "Total" carbon, should read "Combined" carbon.

In the article "A New Type of Air Compressor," appearing May 25, the cooling surface of the intercooler (page 2, last paragraph) is given as 415 square feet. It should be 1340 square feet.

## The Chicago and Northwest Machinery Market.

Office of *The Iron Age*, 805 Fisher Building, {  
CHICAGO, May 27, 1899. }

The only falling off in the machinery trade appears to be in the demand for machine tools. May has shown a marked diminution in the volume of this class of business as compared with preceding months, although making a much better record than the corresponding month of last year. The slackened demand is partly attributed to the material advance in prices made by machine tool builders. Inquiries are good, but unless a tool is absolutely needed the advance of 10 to 25 per cent. above what buyers had been accustomed to paying makes them inclined to defer placing their orders in the hope that they may be able to do better a few weeks or months hence. They are not given any encouragement to expect lower prices, as the high cost of iron, steel and brass will not only compel manufacturers of machine tools to maintain their prices, but may make further advances necessary, as stocks of material bought prior to the advance are worked up. Additional advances have in fact been made by some concerns during the past week. It is stated by some members of the trade that the agricultural implement manufacturers are cutting down their purchases of machine tools on account of the predicted short wheat crop, but this is denied by others, who present strong opposing evidence in the shape of good orders from such sources within a few days past.

Machine tool builders are now beginning to promise better deliveries. This is not because their orders are running low, but by reason of the general increase in productive capacity. It has taken them some time to catch up to the pace of the business of this year. June is confidently expected to be a better month than May, while everybody looks forward to a rushing fall trade.

Wood working machinery is doing fairly well within limited bounds. No large outfits are now called for in this territory, other sections of the country being more conspicuous in working up lumber for the general market. The smaller classes of machines, however, for planing mills and pattern shops, and some large machines for car work, are in fair request.

The demand for engines and general mill supplies is active. The pressure is heavy on all classes of manufacturers, and they are obliged to keep their equipment in the best possible shape. Larger engines are being installed to enable more work to be done by the same machinery. New projects are also getting in shape, requiring motive power and transmission appliances.

Finishing and polishing machines are in continued good demand. The rush for emery wheels is, perhaps, not so great as a month since, but no complaint is heard of dullness, manufacturers having plenty of orders on hand which will keep them busy for some time. Machinists' tools are doing extremely well, the trade in these being steadily of larger proportions.

Labor troubles in foundries throughout the country are accelerating the demand for molding machines. Manufacturers of approved appliances of this character are crowded with orders, and inquiries are increasing.

Pawling & Harnischfeger, Milwaukee, Wis., are very busy and have been for nearly a year. They have been operating their plant with a double force of men for the past eight or nine months, and are now enlarging, so as to enable them to take care of their rapidly increasing trade. Since the first of the year they have sold something over 100 traveling cranes, distributed throughout all parts of the United States, Russia, Austria, England and Hawaii. Among some of the larger orders recently received may be mentioned the following: Seven electric traveling cranes for the Midvale Steel Company, Philadelphia; two for Fraser & Chalmers, Chicago; five for Edward Ford, Toledo, Ohio; two for the Aetna-Standard Iron & Steel Company, Bridgeport, Ohio; five for the Lukens Iron & Steel Company, Coatesville, Pa.; four for the Bethlehem Iron Company, South Bethlehem, Pa.; two for the Gisholt Machine Company, Madison, Wis.; two for William Tod & Co., Youngstown, Ohio; four for the Honolulu Iron Works, Honolulu, Hawaii; two for the Copper Queen Consolidated Mining Company, New York;

two for the Birmingham Foundry & Machine Company, Birmingham, Ala.; ten for the Baltic Works (Russian Government), St. Petersburg, Russia; two for Schuchardt & Schütte, Vienna, Austria; two for the Pennsylvania Steel Company, Steelton, Pa.; five electric hoists for the Carnegie Steel Company, Pittsburgh, and eight electric traveling cranes, each equipped with auxiliary hoist, for Dick Kerr & Co., London, England.

The Edward P. Allis Company, Milwaukee, Wis., find that the heavy engine business still continues excellent, judging from the orders they have received during the past month. Among the business placed with them may be mentioned the following important contracts: A cross compound direct coupling engine of 900 horse-power for the Sioux City Traction Company of Sioux City, Iowa; a second vertical cross compound engine of 2000 horse-power for the Deering Harvester Company of Chicago; six vertical cross compound blowing engines with 96-inch low pressure steam cylinders and 100 inch air cylinders for the National Steel Company, Chicago; two vertical cross compound blowing engines with 84-inch air cylinders for the Riverside Iron Works, Wheeling, W. Va.; a concentrating plant, including compound engine, for a mining company in West Australia; two vertical cross compound direct coupled engines of 5000 horse-power each for the Boston Elevated Railway Company, Boston, Mass. In addition to the foregoing they have received about the usual number of minor orders.

The Nordberg Mfg. Company, Milwaukee, Wis., report business in their several lines of the machinery trade most excellent. They are running 24 hours a day. Prices have advanced considerably, giving a cheerful prospect to the ultimate outcome, but there is "no rose without its thorn," the thorn in their case being inability to accept most desirable orders because they cannot meet buyers' views as to delivery. Their output, however, will be greatly increased by recent additions made to their plant, and they anticipate getting work through with reasonable promptness. They have a large cross compound engine under way for South Africa, and have invaded the home of the Corliss engine by getting a cross compound to build for the American Thread Company, at Holyoke, Mass. They also have under way an 8 000,000 gallon pump for Sheboygan, Wis., and an 8 000,000-gallon pump for St. Joseph, Mo., and a duplicate of the now famous quadruple expansion pump at Wildwood, Pa., and which will go into the same station. A test of this pump conducted by Professor Carpenter of Cornell University showed a duty of approximately 163 000,000 foot pounds of work per 1,000,000 B. T. U., which is a remarkable result, and one which is making a great showing at the coal pile. A large cross compound two-stage Nordberg air compressor was destroyed by the deviltry that took place at the Bunker Hill and Sullivan Mines, Wardner, Idaho, and they now have in hand an order to duplicate this machine as quickly as possible. They regard the future as most promising.

The Union Steam Pump Company, Battle Creek, Mich., are making steam engines of peculiar shape which can be run at very low speed. This type is used mostly on mechanical stokers. They are now filling a very nice order from Europe for a lot of these slow running engines, or, as they call them, motors. These motors are also used for handling link belt machinery where work can be done by ratchet. General business is good, far in excess of last year.

Perry Ransom, Oshkosh, Wis., is having considerable annoyance in obtaining raw material in any reasonable time, which is his principal trouble at present writing. Considerable export business is expected this year, as he has quite a number of inquiries on hand. He will during the next 60 days add some new tools and make some necessary changes in his plant.

The Anderson Foundry & Machine Works, Anderson, Ind., report plenty of business during May, but nothing out of the ordinary.

The Gisholt Machine Company, Madison, Wis., report very good business. They have been adding considerable new machinery to their plant of late, but are still unable to keep up with orders as they would like to. Work is progressing rapidly on their new building.

Stover Novelty Works, Freeport, Ill., are kept very busy.

The Stover Mfg. Company, Freeport, Ill., report their trade keeping up and increasing, especially in the wind mill department.

The M. C. Bullock Mfg. Company, Chicago, report trade unusually brisk, with prices tending upward, and values in all directions exceptionally firm. They have just shipped a large hoisting plant to the Lake Superior district, two mine ventilators to Crow's Nest Pass and two to Japan. They are now building a large hoisting plant for the Black Hills making a shipment of rock drills to New Zealand, and making several carloads of machinery for Australia.

The New Doty Mfg. Company, Janesville, Wis., still have all they can do, with every prospect of being in that condition for some months to come.

The S. Freeman & Sons Mfg. Company, Racine, Wis.,



are extremely busy. The demand for goods in their line, especially in the manufacture of boilers, is simply surprising. The increase in the price of the manufacturing product does not seem to curtail the demand. They are booked ahead with about all the business they can do for the next three months.

The Kempsmith Machine Tool Company, Milwaukee, Wis., say that their unfilled orders are greater than at any time in their history. They are building an addition, now nearing completion, to their factory, that will nearly double their capacity, and from present indications all the additional space will be quickly needed.

The Charles F. Elmes Engineering Works, Chicago, are running 15 hours per day and do not see any prospect of a lull. Their orders at present consist principally of hydraulic work and electric light engines, two of which they are building for the city of Chicago, about 800 horsepower each.

Williams, White & Co., Moline, Ill., find business continuing very good. An order of some importance which they have recently received is for a large multiple punching machine 12 feet long, for an Eastern agricultural implement concern. They are also getting the patterns of their improved Yeakley hammers in shape, so that they will soon have a line of them for the trade.

Joseph T. Ryerson & Son, Chicago, state that boiler makers and cognate interests are too busy to consider any increase in their plants, and the profits are large enough to make them satisfied with their present equipment; hence no heavy demands are now coming in for tools.

The Murray Iron Works Company, Burlington, Iowa, made the following shipments of their Sioux Corliss engines during the month of May: One 500 horsepower electric lighting engine for the capitol of Kansas, one 200 horsepower electric lighting engine for the capitol of Mississippi, one 100 horsepower mill engine for Oklahoma, one 75 horsepower mill engine for Wisconsin, one 100 horsepower mill engine for Iowa, one 150 horsepower mill engine for Texas, one 100 horsepower mill engine for Mississippi, one 100 horsepower mill engine for Michigan, one 100 horsepower mill engine for Texas, one 75 horsepower engine for Nebraska. Also the following shipments of high pressure tubular boilers: Two 150 horsepower for Nebraska, two 100 horsepower for Iowa, one 100 horsepower for Colorado, one 100 horsepower for Michigan, one 80 horsepower for Nebraska; also of internal furnace boilers, three 200 horsepower and one 100 horsepower for Iowa. In addition there were a number of mining engines, two of large size, for Utah. They have plenty of orders on their books for engines and boilers and inquiries continue numerous.

J. J. Ryan & Co., brass founders, Chicago, report business in all their lines exceptionally good. They have had orders during the past month for a number of heavy phosphor bronze bearings, some of which, for the F. W. Wolf Company, Chicago, and the American Steel & Wire Company, weighed upward of 400 pounds each, and others 550 pounds each. Orders for heavy bronze castings have been coming so close together that they were obliged to tear out most of their old furnaces and replace them by others, large enough to give them the required tonnage. Business in aluminum castings is also assuming important dimensions. Alloys of this metal with copper are now being made, developing the same strength practically as cast iron, with a specific gravity only a trifle above that of pure aluminum. They have just finished a very large order for the Otis Elevator Company in this metal. The patterns were all in plaster paris, originally modeled in wax, and of varied and elegant designs, consisting of Corinthian columns 7 feet long, with panels and reliefs in harmonious relations the total weight amounting to about 1000 pounds. The prospect for the immediate future is decidedly encouraging, as they have one single order for a carload of brass castings for July delivery, aggregating 26,000 pounds. Trade in babbitt metals has been increasing so steadily that they are enlarging their facilities and taking on sufficient space to make their productive capacity 50 per cent. greater than at present.

Chas. H. Besly & Co., Chicago, found their May trade in excess of that of April, an especially strong demand having been experienced for mill supplies and machinists' tools. Among notable orders recently received was one for a staybolt tap 8 feet long and 2½ inches thick, from British Columbia, for use in a boiler works. Their Gardner grinders are meeting with continued favor, orders for them coming from Canada as well as from various parts of this country. They are making unusually large shipments of Helmet oil to all parts of the United States. They have just been appointed Western sales agents for Pecora machinery paints, and call attention to a new article in this line, namely, Pecora blowhole cement, which is a cement for filling holes in castings, and will stand under the planer, lathe, file or other finishing operations, while it will endure 200 degrees of heat.

The Witte Iron Works Company, manufacturers of gas and gasoline engines and power transmission, Kansas City, Mo., say that business for the month of May has not been at all satisfactory, considering the prosperous

times. While they have been kept fairly busy, it has been no more so than heretofore, and they feel entitled to more trade, if the reports from the East are true. They ascribe it to the high prices of raw material, as they believe that people do not care to purchase on a rising market, especially when the market is going at the rate it now is. They have found from experience that to inform a prospective purchaser of a gasoline engine that if he does not order soon prices may be changed is just as good as the loss of the order. They believe, however, that just as soon as the market becomes stationary business will increase.

## The Boston Machinery Market.

Office of *The Iron Age*, 33 Mason Building, Boston, May 20, 1899.

Structural work is under way in various sections of the city on buildings which call for large quantities of steel and iron, but few new projects have been brought to light during the past month. Considerable progress has been made with the elevated road's structure on the bridge to the Charlestown district, and the machinery will soon be ready for the drawbridge equipment. Two electric motors will be used to swing the huge structure, weighing about 1000 tons, off and on, and one will be located at each end of the draw.

Aside from the Elevated Company's contemplated work the most important undertaking at present is the work in furtherance of the New England Electric Vehicle Company's plans for running automobiles in Boston. Winslow, Wetherell & Bigelow, architects, have drawn plans for a complete remodeling of the structure known as the Cyclorama Building on Tremont street, which has been purchased by the company, and it will be adapted for machinery to handle and charge the storage batteries and care for 500 automobile vehicles. Among the requirements will be two 10-ton overhead cranes to carry the batteries from the basement stands, where they have been charged, to rapid elevators, which will lift them to an upper floor, where they will be placed in the vehicles. Large quantities of steel will be wanted for the remodeling work, and the equipment of a machine and repair shop will call for small machines and tools. When finished the plant will represent an investment of about \$1,500,000, it is stated. A smaller plant of similar character is contemplated for Newport, R. I.

The first liquid air plant in the city of Boston is to be installed shortly by the United States Power Company, who have secured quarters in Foster's Building on Atlantic avenue. Last week two engines arrived from the makers in Kalamazoo, Mich., and the liquefier is now under construction in this city. C. M. Brown of Chardon street having part of the machine work in hand. The Whitlock Pipe Company of Elmwood, Conn., will furnish the coils that are to be used.

Although no start has been made as yet on the demolition of the old buildings at Lincoln Wharf, which was recently purchased by the Boston Elevated Railway Company for a power plant site, the contracts for equipment of the new structure are under consideration. Orders have been given for two 4000 horsepower Allis engines, but the contracts for boilers and generators have not been let as yet. The plans call for 2700-kilowatt generators, and it is calculated that the plant will be of capacity sufficient to run the entire new elevated system unaided by any of the other plants now operated by the company. It is not decided yet whether the elevated will be run as a system by itself, as far as supplying the power is concerned, or be divided into sections and operated in conjunction with adjacent sections of the company's surface lines. As soon as the old structures on the property acquired have been razed rapid progress will be made toward erecting a new building in which to install the machinery. At the water front portion of the property heavy coal handling machinery will be wanted, for it is decided that coal shall be brought to the wharf by vessels, and possibly coal for other plants of the corporation may be distributed from this point.

Demands for hoisting engines have been exceedingly numerous during the past two or three months. The variety of uses to which the buyers have put them is indicative of tremendous activity in the entire range of industries and in construction work, of course, the call for such machinery has been noticeably large, despite a rather restricted local business in this latter line. The requirements outside of Boston have been greater proportionately than they were in the city.

J. H. Houghton, New England representative of the Lidgerwood Mfg. Company, states that the call for hoisting engines of this make has been very active. Recently to the big pulp mills now going up in Millinocket two engines of 16 horsepower each have been shipped, the Halliwell Granite Company have put in a 50 horsepower engine, the Hollingsworth & Whitney Paper Company a 30 horsepower engine, the Standard Packing Company (sardine trust) at Eastport, Maine, 12 hoisters; while the

same concern have recently placed with the Middlesex Last Company of Malden a 175 horse power Atlas Coriiss engine, with the Knitted Fabrics Company of Methuen a 75 horse power Atlas and at the State Insane Asylum in Concord, N. H., a 100 horse-power Atlas engine.

The Niles Tool Works report an exceptional run on small tools and have been moving good lots of such manufactures every day this month. Recent orders have also included some machines for Cuba, to be used in shops on the island which will produce machines employed in sugar making.

Shaw & Ferguson are busy on electrical equipment for street railways. The recent consolidation of 33 New England electric street railway systems into one great company is expected to result in many changes in power houses and transmission arrangements. As members of this concern are also interested in many of the railway companies to be absorbed, the prospects are excellent for a run of business in this line coming their way.

H. H. Harvey, handler of mining and quarrying machinery, reports good business in these lines. Calls for derricks from contractors have been active lately. One large boom derrick for the city of Boston three for contractors engaged on work for the Lynn & Boston Street Railway Company and several for local building contractors have figured in recent transactions.

Wells Bros. & Co. of Greenfield, Mass., have formed a new company and taken Mr. Goodell of Goodell Bros. Company into it. They have rented a shop for the manufacture of their cutter and reamer grinder. Their own regular business was so good that they could not continue the manufacture thereof in their own shops. The new company will be known as the Greenfield Machine Company.

Fairfield, Maine, is to have a new paper mill. The Somerset & Kennebec Company, owners of the mills at Benton Falls, are to build it on condition that certain concessions be given to the promoters, including a franchise for the extension of an electric road between Benton Falls and Fairfield.

Recent incorporations are given as follows: International Pneumatic Service Company, under laws of Maine, authorized capital \$1,000,000, to manufacture pneumatic delivery tubes; Charles E. Sammons of Boston, president, and A. A. Folsom of Chelsea, treasurer. Blanchard Machine Company of Boston, capital \$15,000, to buy and sell metals, machinery, &c.; incorporators: O. Shepard, O. A. Shepard, J. E. Blacker. Fitchburg Machine Works, manufacturing metal working machinery, capital \$60,000; incorporators: J. L. Chapman, H. Sibley, E. P. Pierce, G. D. Chapman.

Henry F. Hill has been in the western part of the State during the past week engaged in the work of appraising some machinery plants which are to come on the market.

### The National Metallic Roofing Company.

In *The Metal Worker* of April 8 we referred to the steps that were being taken to organize the manufacturers of iron and steel roofing into a consolidated company with an ultimate capitalization of \$4,000,000. It was stated at the time that it was hoped that the consolidation would be completed within a month, but the work has not yet been accomplished owing to various causes that have interfered. One has been the recent break in the industrial market, which has for the time put a stop to the organization of new consolidated companies. The roofing interests have also been awaiting the outcome of the sheet combination, though it is stated that the roofers will combine without reference to what is done in the sheet trade. The roofing company, we are advised, have elected their officers and everything is ready to go ahead under the new deal as soon as a few formalities are perfected.

The prevention of smoke is becoming more and more a pressing problem in this country, especially in those cities that use soft coal exclusively. Therefore keen interest will be taken in a new process for promoting the perfect combustion of low grade fuels without smoke, which is attracting attention in Germany just now. Paul Cornelius is the inventor, and for over six months it has been on trial at the cloth works of Reissner, Wahl & Co. in Guben. The essential feature of the system is the injection of heated air along the under surface of the fire. At one time Mr. Cornelius thought it would improve combustion to add a little petroleum vapor to the air, but he has now abandoned that idea. United States Consul General Mason at Berlin reports that economy is secured and the production of smoke has been obviated completely. The invention has just been patented in the United States.

The Blymyer Iron Works, Cincinnati, Ohio, have secured one-half of the block bounded by Spring Grove avenue, Township and Myrtle streets, with a frontage of 400 feet, upon which a new large factory building will at once be erected.

### Pacific Coast News.

SAN FRANCISCO, May 15 1899.—The various business organizations of the city affected by the abolition of the differential have been assiduously at work since the date of my last communication. So also has been the Transportation Committee of the Pacific Coast Hardware and Metal Association. But nothing has been effected as yet. A leading hardwareman said to your correspondent the other day: "We have only the Pacific Coast trade. We cannot take Eastern goods back again and sell them in the East, and we have just west of us the Pacific Ocean and cannot trade in the waters of the sea. The new rates would leave us no trade—that is to say, that we could not compete by rail. Of course the sea is open to us, and we would avail ourselves of it as we have done before. I would say to the railroads, if Chicago and St. Louis are the proper places to do business from the best thing for us to do is to pull up stakes and migrate to Chicago and St. Louis and leave the railroads to find customers in our stead. We have the sea, though, and if we have to make our fight we will make it that way, as we did years ago, when we scored a success despite all the legal and other difficulties placed in our way."

Some years ago vessels were chartered in the East, the hardware, &c., loaded thereon and shipped to a foreign port, and from that port transhipped to San Francisco. It was a roundabout way, but cheap freights were the thing where the goods were not wanted in a hurry, and the roads had to come to terms. Although the railroads got a decision against the shippers on the ground that goods could not be shipped that way to foreign countries they made terms with the merchants. There are two points in the remarks of the hardwareman that deserve special attention, both by our hardwaremen and by Eastern capitalists. One of his remarks was to the effect that we had nothing to sell to the East, and at present this is almost altogether true of the iron and steel trades, although it is claimed that California gasoline engines are the best that are placed on the market, and San Francisco was the place where the business was first started. Then we have shipped cutlery to the East and are about to send machinery to England, so that the East is not alone in the matter. But a gentleman interested in the business said: "Yes, practically we have nothing to sell to the East in the iron and steel trade, and we will never be out of hot water until we do. Our iron resources must be developed. To do this we must have capital, and as Pacific Coast capital will not interest itself in the matter we must apply to the East. We have the best iron ore in the world, yielding the largest percentage of that metal. With the conversion of that ore into iron and steel we could supply our Pacific Coast trade with many articles of prime necessity in this line, besides being able to place our machinery on the markets of the coast without having to send East or abroad for the raw material. Then we could by degrees increase the list of articles made, and not only supply the coast, but the neighboring States, and in time advance toward the Mississippi, and St. Louis even might find us in dangerous proximity to her jobbers. Gradual development of home industry in this line is, after all, our only real salvation. See how short a time the agreement with the railroads lasted, and how can we be sure that any agreement to be made will have any longer life than the one so abruptly brought to an end? There are so many roads to deal with it and so many interests to subserve that we cannot depend upon any arrangement having a long lease of life." And there are quite a number of people in the city of his opinion. I must say for the San Francisco jobbers that they have always been only too ready to sell such products of home industry as could at all compete with those of the East. J. O. L.

**The H. C. Frick Coke Company.**—In view of the fact that the entire interests of the H. C. Frick Coke Company, the largest coke operators in the world, will be taken over by the new Carnegie Steel Company, now in process of formation, it may be of some interest to give a brief statement of the holdings of that concern. We can state that the H. C. Frick Coke Company own 50 coke plants, aggregating 11,000 ovens. Of these plants 17 are drifts, 21 slopes, 12 are shafts. They own 40,000 acres of coal, have 21,400 acres of surface land, three water plants, three coke crushers, one fire brick works, 2500 individual railroad cars, 60 miles of standard gauge railroad tracks, 305 miles mine tracks, 6000 mine wagons 18 air compressors, 12 electric light plants, 145 pairs stationary engines, 35 locomotives, 263 steam boilers and 1000 horses and mules.

So great is the scarcity of available men and boys in Pittsburgh and vicinity that some of the works there are advertising for girls. At the Oliver shops 150 girls have just been engaged for the nut and bolt department. They can earn from \$7.50 to \$10 a week threading bolts by machinery.



# HARDWARE.

## Condition of Trade.

**T**HE market presents few new features. The movement in Iron and Steel continues to affect the prices of manufactured articles, and advances are being constantly announced not only by houses making heavy goods, which are immediately and necessarily affected, but also by those making miscellaneous Shelf and General Hardware, which do not respond so quickly to changes in the raw material, labor being a much larger proportion of their cost. Some manufacturers who were covered by contracts for material, which enabled them to continue offering goods at old prices, as they find their supply exhausted are obliged to enter the market and purchase at the new prices, which makes it necessary for them to announce advances on their goods. Some prominent manufacturers are very conservatively refraining from advancing prices, believing that there will be before long something of a reaction from the present upward tendency, and perhaps a return to something like former market values. Taking this view of the situation, they prefer to keep their quotations where they are rather than make an advance from which in a short time it might be necessary to recede. In a good many lines the higher prices ruling are the results in good measure of consolidation. Whether permanently higher prices are to be expected from this source is a matter on which opinions differ. In a few lines like Files competition between the manufacturers has kept prices at a comparatively low level, but a new list has been adopted, which at old discounts involves an advance. Collections generally are good. The outlook for business, so far as it is affected by the crop conditions, continues promising.

### Chicago.

The Shelf Hardware trade is showing an increase in volume. The more favorable spring weather is bringing with it almost an extraordinary demand for seasonable goods. Great scarcity is felt for all articles of this character. It seems impossible to get deliveries from factories fast enough to fill orders already booked, to say nothing of taking care of current business. Wire Cloth is being shipped by jobbers here to other jobbing points East and West, showing the shortage in those localities. The price here is firm at \$1.50. The country seems to be absolutely bare of stocks of Wire Cloth. The same is true of Window Screens and Screen Doors. Steel Goods are exceedingly scarce, as well as many articles made of sheet steel and galvanized sheets. Refrigerators are now hard to get. An advance of 10 per cent. has been made in Piced and Stamped Tinware and Japanned and Galvanized Ware. A heavy trade is reported in Bright and Terne Plates. The demand for Roofing Plates is not for large lots, but the small orders are so numerous that jobbers find it difficult to keep up stock. Cokes are in demand for fruit cans and furnace work. The Heavy Hardware trade continues quite active.

### St. Louis.

No change is noted in general Hardware business this week, and the volume of trade keeps well in the channels of the passing month. Builders' Hardware is moving unusually well and a renewed action is taking place

in Wire Cloth. Stove and Tire Bolts show an advance, and in the face of it a demand is awakened, as has been the case in other metal goods which scored better prices. The buying of Screws and Bolts is general and at good prices all along the line. Manufacturers do not cease to complain of shortage in raw material. Stocks of Garden Tools are being heavily drawn upon and a shortage of Lawn Mowers is reported. Advances have been made by jobbers of Axes, who claim that the visible supply will be greatly diminished by fall. Black Sheets are quoted at 3 cents for No. 27 at mill and jobbers name 3.35 cents for lots out of stock. The Galvanized Sheet business is in a queer state and in consequence of mills seeming to steer clear of the market jobbers name their own discounts. Tinware is being bought in good quantities and it is seen that broken stocks are being replenished. There is every reason to feel confident that the trade for the balance of the year will hold up finely.

### Boston.

**BIGELOW & DOWSE COMPANY.**—Since the middle of April business has continued to show good volume and a handsome increase over that of 1898. In all the jobbing houses every one is busy—all experience the same difficulty in getting goods from factories, which seems to be getting worse and worse. On many lines factories are several months behind their orders. While jobbers' stocks are large each has to depend more or less on the others. It is next to impossible to keep up a stock of Wire Cloth, and the price has been advanced to \$2 per 100 square feet, at which price it meets a ready sale. Customers do not question the advance in prices, and all seem to be impressed with the conviction that as the season advances much higher prices will prevail. The basis of a larger part of Hardware manufactures is Bessemer Steel. *The Iron Age* Pittsburgh quotation May 19, 1898, was \$15 per ton, and on May 25, 1899, \$28 per ton, with the prices firm.

It seems improbable that the shortage in raw material can be overcome while orders are being placed so freely by every one. That the present excitement in the Steel market will come to an end some time in the distant future seems probable, but any one who banks on a decline this fall will get badly left.

Factory prices are being well maintained, and goods are moving freely. Retailers are beginning to feel the effect of the improved conditions.

The volume of the Bicycle business continues large, and the present month's sale will show an increase over that of 1898. The demand is for low price wheels, and in some makes there is a shortage. The sales should continue through June, and many more wheels are to be sold before the season closes.

### Baltimore.

**CARLIN & FULTON.**—Warm summer weather after a cool spring is now helping the sale of goods strictly seasonable. Scythes and Snaths and Grain Cradles are in great demand, indicating either a scarcity of goods or prospectively large crops. Lawn Mowers are also moving rapidly, though perhaps not with the ease shown in the handsome illustrations in which the proverbial child beautifully dressed pushes "the best Mower" on earth as she would her doll carriage. Refrigerators and Ice Cream Freezers have sold well and by their universal use will help the dividends of the ice trust.

It would require more time than we have to spare to itemize the advances which are announced every day by nearly every manufacturer, whether individual or in com-

bination. The investing public after the shrinkage during the last few weeks in the market value of industrial shares, may not encourage the formation for a while yet of many new trusts or consolidations, which may have common stock for sale to the credulous speculator; but we must not shut our eyes to the fact that already most powerful combinations or trusts (or whatever you choose to call them) control nearly the entire output of our domestic manufacturers, beginning with the very elements and ending with the finished products. This applies more particularly to the lines of Hardware and Metals than to any other business followed. But after all the hue and cry, a comparison of the average costs of to-day with those of a few years ago will show that prices in advancing have not yet reached their maximum; the only thing is that, in the heavy staples, the contrasts between to-day's quotations and those of last year are so vivid and have been produced so suddenly. The smaller goods, known as Shelf Hardware, in which labor is as large a portion of the cost almost as material, have not advanced to the degree of the heavier goods, but as old stocks of raw material are used up and the manufacturer is compelled to calculate his cost on higher prices for everything, labor as well as material, it would hardly be reasonable not to expect still greater changes.

If the gentlemen who were devoting their energies and talents to the formation of the billion dollar trust, which was to absorb nearly everything else, but which did not materialize, would only turn their attention now to doing something for the farmer as well as for the mine owner, corner the wheat, the cotton and the tobacco market as they have done with Iron and Steel and Copper, give the farmer \$1 per bushel for his wheat, the planter 10c. per pound for his cotton, the anti-trust plank in the future political platforms of both parties will never be used, but instead thereof their names would be placed with that of Joseph Leiter among the "immortals."

Does it not seem strange to read in the morning paper of to-day in the proceedings of the Peace Congress, in session at the Hague at the suggestion of the Czar of Russia, and in another column of the same paper the announcement that millions of his subjects are starving to death in Siberia, and yet in another column in the market report the fact that wheat is about 75c. per bushel in Chicago and that this country has millions of bushels to sell? What stronger argument for the disarmament of Russia's mighty host and the appropriation of the fund used in their support toward the relief of the famishing peasants in far Siberia. But then, again, what effect would the disbanding of Europe's armies have upon the labor market? This is another question for political economists.

We will say to our friends in the trade that we do not expect the American Ammunition Association to reduce prices as a result of the deliberations of the Peace Congress.

#### St. Paul.

FARWELL, OZMUN, KIRK & Co.—There is little of special importance to note at this time. Business has continued strong and May will hold a favorable place in the history of the trade, not only in this year's records, but also in that of the past.

The demand for goods holds up very satisfactorily and extends throughout the different lines. This applies to seasonable goods, such as Bicycles, Bicycle Sundries, &c., and fully as forcibly to such lines as Builders' Hardware. This last mentioned feature is especially gratifying, as it indicates clearly that the country has entered upon a period of development which, unless it meets with an unexpected, decisive check, may be expected to increase in force for some time to come.

The weather has been cool and the season is backward, but upon the whole it is as yet favorable.

Prices are well maintained. Jobbers have now reached the important point in various lines of goods when they are compelled to prepare to go into the markets and replenish their stocks. In some cases they are

not able to do this, even at current prices, as the manufacturers cannot give prompt shipment and are liable to make the condition that prices shall be governed by those in force when the goods may be furnished.

Very great difficulty is experienced in some lines and especially with some manufacturers in getting goods that have been specified for months ago. It is a subject of considerable concern as to whether this very aggravating trouble will increase as the season advances. Jobbers have generally made strong efforts to prepare against this condition, but with only partial success, as some lines of goods have been scarce since last December.

The expected meeting of the Pacific Coast and the Central Western Hardware shippers with the Northern Pacific and the Great Northern Railroad traffic managers has been held and occupied two days. The Pacific Coast jobbers object to the rates that were put into effect May 1 by the two transcontinental roads mentioned. These rates affect principally Hardware and reduce to some extent the high rates that were adopted at Milwaukee one year ago. They also establish classifications of goods that enable the retail Hardware merchants of Washington and Oregon to buy most lines of goods from the Eastern jobbers and thus give them the benefit of the markets of the country. The railroads have taken the subject under consideration and in due time will make their decision public.

#### Louisville.

W. B. BELKNAP & Co.—Business seems to be settling down to a good, steady gait; the mad rush to get in before the advances which were so readily prognosticated during the formation of the combinations has given way to a more dignified movement. Of course intimations are not lacking that there are more surprises in the future for laggards or those who fail to take advantage of the present opportunities, and predictions are freely made by certain quarters that prices which we are paying now will look cheap by next fall.

The convention season is at its height all over the country and the distribution of badges and souvenirs goes freely on. Meanwhile some are kept at home to get their old contracts cleared up, which is not altogether an uninteresting occupation.

#### Philadelphia.

SUPPLEE HARDWARE COMPANY.—There is apparently no change in trade conditions during the last two weeks, general trade being as active as it has been at any time the last six weeks.

The difficulty in securing from manufacturers season goods still continues, much to the annoyance of jobbers and retail merchants. It is seldom the case when the season is thus far advanced that orders for current season goods have not been completed, but manufacturers of Poultry Netting, green Wire Cloth, Screens, Screen Doors, Hoes, Rakes and even Scythes are still far behind their orders.

Collections are but fair.

#### Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—Since our last report the jobbing Hardware trade of Omaha, and we may also include other jobbing centers on the Missouri River, have enjoyed a continuous run of business, with few changes of any kind and none of importance to distinguish it from weeks of recent date. All kinds of seasonable merchandise are going into consumption with satisfactory rapidity, and the general volume of business is about all that could be expected. There has been more than the usual amount of cool and stormy weather, which has been accompanied with an abundant supply of moisture. Conditions, however, may be reported as generally favorable.

The time has been well improved by producers in the way of plowing and planting operations. Wheat, oats and barley have made satisfactory advancement and the



prospects for a heavy supply of grass are particularly favorable. Fruit trees, vines and berries of all kinds that escaped destruction during the long and severe winter now give promise of good crops.

Advances in prices by manufacturers continue to appear with cheerful regularity.

There is a feeling among some business men that we are approaching the danger line in regard to prices on some leading staples, and they say it is only a matter of time until we will stumble against a live wire and then "it will be pay day on the Wabash."

#### Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—There is no change to note at this time in the business outlook of this section. Cloudy, cold, rainy weather still holds on. We cannot recall a spring in the past equal to the present one. Vegetation is making slow growth and many acres of low land will not be seeded. Fruit of some kinds will be a very short crop. Until more seasonable weather makes its appearance we cannot expect any quickening of trade. Both city and country are complaining of the present, but hopeful of the future. From a jobber's standpoint we have lost nothing so far by trade being backward, as each day or week has seen prices advance in either our Hardware, Stove, Tinware or Plumbing Supplies department.

Collections slow; no material change; are fair considering time of year.

### Notes on Prices.

**Wire Nails.**—The condition of the Wire Nail market is substantially the same as at our last report. There is a good demand, and in view of the advance in raw material the market has a very strong tone, and it would not be surprising if higher prices were announced. Quotations are as before, f.o.b. Pittsburgh:

To jobbers in carload lots.....	\$2.10
To " " in less than carload lots.....	2.12½
To retailers in carload lots.....	2.20
To " " in less than carload lots.....	2.30

**New York.**—The character of the demand for Nails in the New York market indicates good activity in business in the territory tributary to the city. There is apparently a good deal of building going on with prospect of continued increase. The market is represented by the following quotations:

To retailers, carloads on dock.....	\$2.30 to \$2.35
To " " less than carloads on dock.....	2.50
Small lots from store.....	2.55 to 2.60

**Chicago.**—It is expected that an advance will shortly be made in the price of Wire Nails to conform with the upward movement in raw materials. As compared with other articles the price of Wire Nails seems quite low. Manufacturers report a decided increase in the demand. They quote single carload orders at equivalent to \$2.35, Chicago. Jobbers are having a heavy trade from stock, continuing to quote small lots at \$2.45.

**St. Louis.**—Nothing has taken place in the Wire Nail trade out of ordinary run of business, but the advances of raw material will doubtless bring a change of price. We quote carload lots to jobbers at \$2.30, base, St. Louis; single cars at \$2.40, and small lots at \$2.50 from stock.

**Pittsburgh.**—Contrary to general expectations there has been no further advance in price of Wire Nails since our last report. With the steady advances being made in prices on other lines of material, it is believed that still higher prices for Wire and Wire Nails are a matter of only a very short time. The demand for Wire Nails is reported as being heavy, and the general condition of the trade extremely satisfactory. We quote to jobbers in carload lots, \$2.10; to jobbers in less than carload lots, \$2.12½; to retailers in carload lots, \$2.20; to retailers in less than carload lots, \$2.30, all f.o.b. Pittsburgh, with freight to destination added.

**Cut Nails.**—An advance of 10 cents a keg has been made in Cut Nails in the Eastern territory, and quota-

tions are as follows, f.o.b. Pittsburgh, freight being added to destination:

To jobbers in carload lots.....	\$1.85
To " " in less than carload lots.....	1.90
To retailers in carload lots.....	1.90
To " " in less than carload lots.....	2.05

In view of the condition of the Iron market and the high price ruling for Wire Nails, with the prospect of a further advance, the market for Cut Nails is decidedly firm.

**New York.**—A good demand for Nails is reported, and the market is firm in view of the higher prices mentioned above. Quotations are as follows: Carload lots on dock, \$2 to \$2.05; small lots from store, \$2.15 to \$2.20.

**Chicago.**—No change has been made in the price of Cut Nails, small lots continuing to sell at \$1.90 from stock.

**St. Louis.**—The regular amount of business is getting into Nail mills' hands. Prices show no change, and jobbers quote \$2, base, for small lots.

**Pittsburgh.**—There is a good demand for Cut Nails, and the tone of the market is exceptionally strong. We quote to jobbers in carload lots \$1.75, and in less than carload lots \$1.85, f.o.b. Pittsburgh.

**Barb Wire.**—The mills are fully occupied in making deliveries on contracts, notwithstanding the advanced stage of the season, and an unusually large amount of new business is being received by them. The market is strong in tone, and in view of the increased cost of the raw material and the heavy demand made upon the mills, the announcement of higher quotations would not be surprising to the trade. Prices continue unchanged, f.o.b. Pittsburgh:

To jobbers in carload lots, Painted.....	\$2.20
To " " " Galvanized.....	2.70
To " " in less than carload lots, Painted.....	2.22½
To " " " Galvanized.....	2.72½
To retailers in carload lots, Painted.....	2.30
To " " " Galvanized.....	2.80
To " " in less than carload lots, Painted.....	2.40
To " " " Galvanized.....	2.90

**Chicago.**—Manufacturers are favored with the continuance of good trade in both Plain and Barb Wire. An early advance is expected in price by those who are familiar with existing conditions in the market for raw material. Wire Rods have sold in this vicinity at \$37.50 per ton. Jobbers report an extraordinary demand for the season for Barb Wire. They also state that the demand for Plain Wire is heavy. Prices are at present quoted at the equivalent of \$2.20, Chicago, for single carload lots of Plain Annealed, \$2.45 for Painted Barb Wire, \$2.95 for Galvanized Barb Wire. Jobbers' prices for small lots are firm at 10 cents per 100 pounds above carload rates.

**St. Louis.**—Purchases are being made at a good rate and no cause for complaint is apparent either for manufacturers' deliveries or consumers' need. Manufacturers quote equal to \$2.40, St. Louis, for Painted in carload lots to jobbers. Single cars may be had of jobbers at \$2.50 and smaller quantities at \$2.60. Galvanized is quoted at an advance of 50 cents per 100 on above prices.

**Pittsburgh.**—There is an extraordinary demand for Barb Wire and considerable difficulty is being met by jobbers in securing shipments from the mills as fast as needed. The tonnage this season promises to be considerably heavier than ever before. We quote at \$2.20 for Painted in carload lots to jobbers and \$2.30 to the small trade, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh.

**Smooth Wire.**—Heavy pressure is brought to bear on the mills to secure prompt delivery of Smooth Wire previously purchased, but they are unable to meet fully the requirements of the trade. Quotations are firm, as follows, f.o.b. Pittsburgh:

To jobbers in carload lots.....	\$1.95
To " " in less than carload lots.....	1.97½
To retailers in carload lots.....	2.05
To " " in less than carload lots.....	2.15

The charge for galvanizing is 50 cents on sizes from 6 to 14 inclusive; on Nos. 15 and 16 it is 85 cents and on Nos. 17 and 18 \$1.10.

**Pittsburgh.**—There is nothing of interest to note. Demand is unusually heavy and considerably ahead of any previous year in the history of the Wire trade. The tone of the market is strong and established prices are being steadily maintained. We quote: Jobbers, \$1.95; to smaller trade, carload lots, \$2.05, and less than carload lots, \$2.15. On Galvanized Plain Wire, all sizes up to and including No. 14, 50 cents advance; Nos. 15 and 16, 85 cents; 17 and 18, \$1.10, all f.o.b. Pittsburgh, with freight tariff to destination added.

**Mrs. Potts' Sad Irons.**—The advance referred to in our last issue in the manufacturers' prices of Mrs. Potts' Sad Irons has gone into effect and the makers of these goods are, we are advised, holding firmly to the higher prices ruling. There continues to be, however, a good deal of irregularity in the quotations at which the goods are obtainable through the jobbing trade, one manufacturer stating that retailers could buy a single case at a lower price from well-known jobbers than a carload could be purchased from manufacturers.

**Chain.**—Under date May 26 the following advanced prices for Coil Chain are announced by the manufacturers, applying to less than carload lots. In carload lots the price is 1-10 cent per pound less than above. Terms net cash, f.o.b. Pittsburgh:

Inch.	Cents per pound.	Inch.	Cents per pound.
$\frac{3}{16}$ .....	7.50	$\frac{11}{16}$ .....	3.55
$\frac{7}{16}$ .....	5.65	$\frac{13}{16}$ .....	3.50
$\frac{1}{2}$ .....	4.65	$\frac{15}{16}$ .....	3.50
$\frac{5}{8}$ .....	4.00	$\frac{17}{16}$ .....	3.40
$\frac{3}{4}$ .....	3.85	$\frac{19}{16}$ .....	3.40
$\frac{7}{8}$ .....	3.70	1.....	3.40
$\frac{15}{16}$ .....	3.65	$1\frac{1}{16}$ .....	3.40
1.....	3.55	$1\frac{3}{16}$ .....	3.40

B. B.,  $1\frac{1}{4}$  cents per pound advance.

B. B. B.,  $1\frac{1}{4}$  cents per pound advance.

Dredge Chain,  $4\frac{3}{4}$  cents per pound advance.

**Stanley Works.**—The change in the base discounts of Strap and T Hinges and Wrought Butts to which reference was made in our last issue is announced by the Stanley Works, New Britain, Conn., and 79 Chambers street, New York, as follows:

	Discount.
	Per cent.
Light Strap Hinges, No. 900.....	70 and 10
Heavy " " Nos. 902, 935.....	75 and 5
Light T Hinges, No. 904.....	65
Heavy T " " 906.....	70
Extra Heavy T Hinges, Nos. 908, 937.....	70 and 10
Hinge Hasps, Nos. 912, 913, 914, 918, 930.....	55
Long Chest Hinges, No. 910.....	55
Bright Butts—	
Nos. 800, 802, 804, 806, 808, 810, 814, 816, 818, 820, 854.....	66%
Nos. 828, 829, 830, 832, 834, 836, 838, 840, 842, 843, 844, 845, 846, 848.....	70
Nos. 822, 823, 823 $\frac{1}{2}$ , 825.....	70 and 10 and 10

The changes in the base discounts of their Door Bolts previously announced are as follows:

	Discount.
	Per cent.
Barrel Bolts, Nos. 1078, 1078 $\frac{1}{2}$ , 1080, 1081, 1082, 1084, 1086.....	70 and 5
Square Bolts, Nos. 1088, 1090, 1092, 1094, 1098.....	66%
Shutter " " 1110, 1112, 1130.....	50 and 10
" " " 1114, 1118.....	20
Bronzed Barrel Bolts, Nos. 402, 404, 406, 407, 408, 409.....	40 and 10

**Bonney Vise & Tool Works.**—Bonney Vise & Tool Works, Philadelphia, on account of the fact that they are now obliged to pay new prices for raw material have made a general advance of about 10 per cent. in their prices of Vises, Hollow Augers, &c.

**Listed Chain.**—The condition of the raw material and the heavy demand made upon the manufacturers has had the effect of causing several advances in the prices of Trace, Wagon and other listed Chains. The manufacturers' quotations on these goods are now represented by the discount of 60 per cent. in ordinary lots with concessions to large buyers.

**Tire Bolts, Stove Bolts, &c.**—An advance in the price of Tire Bolts, Stove Bolts, Stove Rods and Sink Bolts was made by the manufacturers of these goods May 24, and circulars announcing the change are issued by Russell &

Erwin Mfg. Company, American Screw Company and other manufacturers. According to this action the present regularly announced prices on these goods are as follows:

	Discount
	Per cent.
Common Tire Bolts.....	67 $\frac{1}{2}$
Norway Philadelphia Tire Bolts.....	75
Intermediate Quality " ".....	80
Stove and Sink Bolts.....	67 $\frac{1}{2}$

**Philadelphia Eagle Carriage Bolts.**—A revised list has been adopted by the manufacturers of Philadelphia Eagle Carriage Bolts under date May 24. It will be observed that the change is in the list prices of the  $\frac{3}{8}$ -inch Bolts. In connection with this new list the discount of 80 per cent. is announced, with freight allowance Shelton Company, Derby, Conn., and 64 Reade street, New York, have issued the revised list, as follows:

*Philadelphia Eagle Carriage Bolts.*

Price per 100.

Length	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$ & $\frac{3}{4}$
1.....	\$3.00	\$4.00	\$5.40	\$7.30	\$9.50	.....
$1\frac{1}{4}$ .....	3.10	4.00	5.40	7.30	9.50	.....
$1\frac{1}{2}$ .....	3.20	4.00	5.40	7.30	9.50	.....
$1\frac{3}{4}$ .....	3.30	4.00	5.40	7.50	9.80	.....
2.....	3.40	4.10	5.40	7.70	10.10	.....
$2\frac{1}{4}$ .....	3.50	4.20	5.60	7.90	10.35	.....
$2\frac{1}{2}$ .....	3.60	4.40	5.80	8.15	10.65	.....
$2\frac{3}{4}$ .....	3.70	4.50	6.00	8.35	10.90	.....
3.....	3.80	4.70	6.20	8.65	11.30	\$18.75
$3\frac{1}{4}$ .....	3.90	4.90	6.50	8.75	11.50	19.25
$3\frac{1}{2}$ .....	4.00	5.00	6.70	8.95	11.75	19.75
$3\frac{3}{4}$ .....	4.10	5.20	6.90	9.15	12.00	20.25
4.....	4.20	5.30	7.10	9.40	12.30	20.75
$4\frac{1}{4}$ .....	4.35	5.50	7.30	9.60	12.60	21.25
$4\frac{1}{2}$ .....	4.50	5.70	7.50	9.80	12.90	21.75
$4\frac{3}{4}$ .....	4.65	5.85	7.70	10.00	13.15	22.25
5.....	4.80	6.00	7.90	10.25	13.45	22.75
$5\frac{1}{4}$ .....	5.10	6.30	8.40	10.65	14.00	23.75
$5\frac{1}{2}$ .....	5.40	6.60	8.80	11.05	14.55	24.75
$5\frac{3}{4}$ .....	.....	7.00	9.30	11.50	15.10	25.75
6.....	.....	7.30	9.70	11.85	15.70	26.75
$6\frac{1}{4}$ .....	.....	7.60	10.10	12.35	16.25	27.75
$6\frac{1}{2}$ .....	.....	7.90	10.50	12.75	16.80	28.75
$6\frac{3}{4}$ .....	.....	8.20	10.90	13.15	17.35	29.75
7.....	.....	8.50	11.40	13.60	17.90	30.75
$7\frac{1}{4}$ .....	.....	.....	11.90	14.00	18.50	31.75
$7\frac{1}{2}$ .....	.....	.....	12.40	14.45	19.00	32.75
$7\frac{3}{4}$ .....	.....	.....	.....	14.85	19.60	33.75
8.....	.....	.....	.....	15.25	20.15	34.75
$8\frac{1}{4}$ .....	.....	.....	.....	15.70	20.70	35.75
$8\frac{1}{2}$ .....	.....	.....	.....	16.15	21.30	36.75

**Waltham Blind Fasts and Hinges.**—We are advised by E. M. Richardson, Waltham, Mass., that owing to the increased cost of material the price of the Waltham Steel Spring Wire Blind Fast has been advanced 25 cents per 100 sets, and the price of the Waltham Blind Hinges 50 cents per 100 sets.

**Peck, Stow & Wilcox Company.**—Peck, Stow & Wilcox Company, Southington, Conn., and 27 Murray street, New York, have issued discount sheet No. 2 applying to their 1898 catalogue, and indicating a very general revision of their prices with considerable advances in many lines. Special goods which are marked "A" are subject to a discount of 10 per cent. beyond the discount printed, and special goods marked "B" are net. Other quotations given in the discount sheet are subject to an additional discount of about 20 per cent. Pressure on our space does not permit our printing the discount sheet, but it will be of interest to the trade generally as indicating in a general way the condition of the market on the large and important line of goods to which it relates. The company have also issued a special circular in which the following quotations are given:

	Discount per cent.
Scale Beams.....	40 and 10
Steelyards.....	40
Agricultural or Standard Wrenches.....	75 and 5
Socket Firmer and Framing Chisels.....	75 and 5 and 2 $\frac{1}{2}$
Socket Corner Chisels and Slicks.....	75 and 5 and 2 $\frac{1}{2}$
Carpenters' and Razor Blade Drawing Knives.....	75 and 5 and 2 $\frac{1}{2}$

Orders for Meat Cutters and the Ideal Fruit Cutter received prior to July 1 will be accepted at prices established in the early part of the year.

The company also issue under date May 24 announcement of change in the list price of  $\frac{3}{8}$ -inch Philadelphia Eagle Carriage Bolts, to which special reference is made in another column.



**Files.**—We print herewith a revised price-list of Files and Rasps which has been adopted by the File Manufacturers' Association to go into effect June 1. It will be observed that the old list has been carefully revised and that while some of the list prices have been reduced the general effect of the changes made is in the direction of an advance. The manufacturers make no change in their

creasing scarcity of Wire Cloth, and jobbers' prices on this account have been steadily advancing. The New England jobbers are, we are advised, now selling at \$2 per 100 square feet, and this price or a price approximating it is, we believe, asked by others. Prominent jobbing houses in the West continue to sell at \$1.25 to \$1.50, but the price is likely to be gradually advanced.

### Revised List of Files and Rasps.

June 1st, 1899.

INCH. MILL AND ROUND.				FLAT.			INCH.	SQUARE.			HAND AND PILLAR.			INCH.	HLF. RD. & THREE SQ.			WARDING.		
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth
4	2.60	3.00	3.40	3.20	3.70	4.10	4	3.30	4.00	4.30	3.20	3.70	4.20	4	4.20	4.90	5.30	3.50	4.20	4.70
5	2.80	3.30	3.60	3.40	4.00	4.30	5	3.60	4.20	4.60	3.40	4.10	4.60	5	4.70	5.30	5.60	3.90	4.60	5.00
6	3.00	3.50	3.90	3.70	4.20	4.60	6	4.00	4.40	4.80	3.70	4.40	4.90	6	5.30	5.80	6.20	4.30	5.10	5.60
7	3.40	4.00	4.30	4.20	4.80	5.30	7	4.40	5.00	5.50	4.30	5.00	5.50	7	6.10	6.70	7.10	5.10	6.00	6.50
8	3.70	4.30	4.70	4.60	5.30	5.70	8	4.80	5.50	6.10	4.70	5.50	5.80	8	6.50	7.20	7.70	5.60	6.50	7.10
9	4.30	5.00	5.50	5.50	6.30	6.90	9	5.70	6.70	7.20	5.80	6.80	7.20	9	7.40	8.20	8.60	6.80	7.80	8.60
10	4.90	5.60	6.10	6.10	7.00	7.60	10	6.40	7.40	7.90	6.50	7.60	8.20	10	7.90	8.80	9.30	7.60	8.80	9.60
11	5.80	6.80	7.40	7.50	8.50	9.30	11	7.90	9.00	9.80	8.20	9.50	10.30	11	9.30	10.30	11.00	9.50	11.00	11.90
12	6.50	7.50	8.20	8.40	9.60	10.50	12	8.90	10.00	11.10	9.30	10.70	11.70	12	10.30	11.30	12.10	10.70	12.40	13.40
13	8.20	9.30	10.20	10.30	11.80	12.80	13	10.90	12.40	13.40	11.60	13.20	14.10	13	12.30	13.40	14.40	13.20	15.10	16.30
14	9.30	10.60	11.40	11.60	13.30	14.50	14	12.10	14.00	15.20	13.00	14.80	15.80	14	13.50	14.80	15.90	14.80	16.90	18.30
15	11.40	13.00	14.00	13.90	15.90	17.40	15	14.70	16.70	18.20	15.60	17.90	18.90	15	16.10	17.70	18.90	Stavesaw Improved 6 inch, \$5.60		
16	12.80	14.60	15.60	15.50	17.50	19.40	16	16.30	18.40	20.30	17.50	19.80	21.00	16	17.90	19.60	21.00			
17	15.80	17.60	18.90	18.70	21.00	23.00	17	19.60	22.10	23.90	21.00	23.60	24.90	17	21.50	23.50	25.10	Stavesaw 7 " " 6.40		
18	17.60	19.70	21.10	20.80	23.30	25.40	18	21.80	24.50	26.40	23.30	26.00	27.40	18	23.90	26.00	27.80			
19	21.40	23.90	25.60	24.70	27.50	30.10	19	25.80	28.90	31.00	27.70	30.80	32.70	19	28.50	31.00	33.10	10 " " 8.40		
20	23.50	26.70	28.60	27.40	30.70	33.30	20	28.50	31.90	34.20	30.50	34.10	36.20	20	31.50	34.30	36.80			
MILL Blunt, Dbl. Cut, adv. 2 in. MILL Dbl. Cut, " " 1 " MILL Narrow Point, " " 1 "							Cant (Blunt) Dbl. Cut advance 2 in.			Square Blunt, advance 1 in.			Slotting (Blt.) adv. 2 in. Cutter Blunt or Taper advance 2 in.			Glass, take Bastard price. Crossing, " " adv. 2 in. Tumbler, " " " " Feather Edge (Blunt) " " " " High Back " " " " Half Round " " " "				

INCH.	MILL. ONE ROUND EDGE.			MILL. TWO ROUND EDGES.			INCH.	TAPERS.		SLIMTAPERS.		BANDSAW. BLUNT & TAPER.		INCH.	PIT SAW.	CANT SAW.	CROSS CUT.	HOOK TOOTH.	Planer Knife.	Insert Teeth, or Chisel Teeth
	Bastard	2d Cut	Smooth	Bastard	2d Cut	Smooth		Single Cut	Double Cut	Single Cut	Double Cut	Regul'r	Slim							
4	2.90	3.40	3.90	3.30	3.90	4.20	3	1.80	2.20	1.80	2.20	2.20	2.20	4	4.20	3.70	4.20	.....	.....	.....
5	3.20	3.70	4.10	3.50	4.10	4.60	3 1/2	1.80	2.20	1.80	2.20	2.20	2.20	5	4.70	4.10	4.70	.....	.....	.....
6	3.40	4.00	4.30	3.90	4.40	4.80	4	1.90	2.50	1.90	2.30	2.50	2.30	6	5.30	4.70	5.30	5.80	.....	.....
7	3.90	4.60	4.90	4.30	5.00	5.40	4 1/2	2.10	2.70	2.00	2.60	2.70	2.60	7	6.10	5.30	6.10	6.70	.....	.....
8	4.20	4.90	5.30	4.70	5.40	5.80	5	2.30	3.00	2.20	2.80	3.00	2.80	8	6.50	5.60	6.50	7.20	5.60	7.20
9	5.00	5.70	6.20	5.60	6.30	6.90	5 1/2	2.60	3.50	2.50	3.00	3.50	3.00	9	7.40	6.80	7.40	8.20	.....	8.20
10	5.50	6.30	6.90	6.20	7.00	7.60	6	2.90	4.10	2.70	3.40	4.10	3.40	10	7.90	7.60	7.90	8.80	7.50	8.80
11	6.70	7.60	8.30	7.40	8.50	9.20	7	3.70	4.90	3.30	3.90	4.90	3.90	11	9.30	9.00	9.30	10.30	.....	.....
12	7.40	8.40	9.20	8.20	9.30	10.30	8	4.70	5.80	3.90	4.60	5.80	4.60	12	10.30	9.90	10.30	11.30	10.50	.....
13	9.20	10.50	11.40	10.30	11.70	12.70	9	5.70	7.00	4.70	5.50	7.00	5.50	Climax, adv. 2 in. on Hlf. Rd. Bastard. Round Gulleting, take Pitasaw price.						
14	10.50	11.90	12.80	11.70	13.30	14.40	10	7.00	8.40	5.60	6.50	8.40	6.50							
15	12.80	14.60	15.80	14.40	16.20	17.50	11	9.30	10.50	7.20	7.90	10.50	7.90	6	3.00	3.00	3.40	3.80	4.30	
16	14.50	16.50	17.60	16.10	18.20	19.60	12	10.90	12.80	8.30	9.60	12.80	9.60	7	3.00	3.00	3.40	3.80	4.30	
17	17.70	19.80	21.20	19.70	22.10	23.70	13	13.80	15.20	10.50	11.40	15.20	11.40	8	3.00	3.00	3.40	3.80	4.30	
18	19.80	22.20	23.80	22.10	24.60	26.40	14	15.80	17.90	12.00	13.40	17.90	13.40	9	3.00	3.00	3.40	3.80	4.30	

INCH.	HORSE RASPS.			FILE RASPS.		INCH.	WOOD FILES.			WOOD RASPS.			INCH.	SHOE RASPS.			INCH.	KNIFE.		
	Plain	Beveled 2 1/2" Rasp	Tanged	Flat	Hlf. Rnd		Flat	Hlf. Rnd	Cabinet	Flat	Hlf. Rnd	Cabinet		Flat	Hlf. Rnd	Oval		Bastard	2d Cut	Smooth
6	.....	.....	.....	6.40	7.00	6	3.70	5.30	7.00	6.40	7.00	8.80	6	7.00	7.00	8.10	4	4.70	5.30	5.60
7	.....	.....	.....	7.50	8.10	7	4.20	6.10	8.10	7.50	8.10	10.20	7	8.10	8.10	8.80	5	5.30	5.80	6.20
8	.....	.....	.....	8.20	8.80	8	4.60	6.50	8.80	8.20	8.80	11.10	8	8.80	8.80	10.60	6	6.00	6.50	6.90
9	.....	.....	.....	9.90	10.60	9	5.50	7.40	10.60	9.90	10.60	13.50	9	10.60	10.60	11.90	7	6.80	7.40	7.70
10	8.20	9.30	11.10	11.10	11.90	10	6.10	7.90	11.90	11.10	11.90	15.20	10	11.90	11.90	14.60	8	7.40	7.90	8.30
11	9.90	11.20	13.20	13.50	14.60	11	7.50	9.30	14.60	13.50	14.60	18.00	11	14.60	14.60	16.30	9	8.20	9.20	9.80
12	11.10	12.50	14.60	15.20	16.30	12	8.40	10.30	16.30	15.20	16.30	19.80	12	16.30	16.30	19.50	10	8.80	10.00	10.70
13	13.20	14.80	17.00	18.20	19.50	13	10.30	12.30	19.50	18.20	19.50	23.30	13	19.50	19.50	.....	11	10.60	11.90	12.70
14	15.50	17.50	20.10	20.20	21.60	14	11.60	13.50	21.60	20.20	21.60	25.70	14	21.60	21.60	.....	12	11.90	13.20	14.00
15	18.20	20.50	23.70	24.20	25.80	15	13.90	16.10	25.80	24.20	25.80	29.50	LAST MAKERS' RASPS. One inch adv. on Cabinet Rasp.							
16	21.20	23.90	28.00	26.80	28.60	16	15.50	17.90	28.60	26.80	28.60	33.10								
17	25.10	27.40	.....	31.50	33.80	17	18.70	21.50	33.80	31.50	33.80	36.90								
18	28.60	31.50	.....	35.60	37.90	18	20.80	23.90	37.90	35.60	37.90	40.80								

Sizes below 4 inches, not extended, take 4 inch price.  
Half inches not specified, take next higher full inch price.  
Dead Smooth, double the price of Bastard Cut.  
One Round Edge, advance 1 1/2 per cent.  
All lengths above those listed, advance 20 per cent. on next lower inch price.

Cuts not specified, made upon regular blanks, advance one inch on respective kinds and nearest cut.

Blunt Files not specified, advance one inch on respective kinds and cuts.  
Single or Float Cut not specified, on regular shapes take Double Cut price.  
Equalizing (Bellied), advance two inches on respective kinds and cuts.  
Two Round Edges, advance 25 per cent.  
Files varying from standard sizes, subject to special prices.

discounts, those applying to the old list being applicable also to the new one. They refer to the recent advance in the price of steel and other materials together with the general upward tendency in cost of labor as rendering this advance necessary. They also suggest, in view of the scarcity of raw material and the doubtful prospect of improvement in this respect, that a wise business policy calls for the realization of this advance on stocks in the hands of the merchants.

**Wire Cloth.**—There continues to be a marked and in-

**Wrought Iron Pipe.**—The market in W

considering the lateness of the season. Blue vitriol and arsenic hold a strong market position, and higher prices for Green are anticipated by some when consumptive demand becomes active. Manufacturers' prices, which are as follows, are shaded by jobbers:

	Cents per pound.	
Arsenic kegs or casks.....	12	to 13
Kegs of 100 to 175 pounds.....	12½	to 13½
Kits of 14, 28 and 56 ".....	13½	to 14½
Paper boxes, 2 to 5 ".....	13½	to 14½
" " 1 pound.....	14	to 15
" " ½ ".....	15	to 16
" " ¼ ".....	16	to 17

**Glass.**—It is estimated that the combined factories closed down the last of May with about the same amount of stock on hand as last year, or from 1,000,000 to 1,250,000 boxes, probably enough to supply demand until the last of September. There is no indication of lower prices, but as assortments become broken advances are probable. The usual policy of delay in starting factories in the fall may be pursued by manufacturers, while Glass labor organizations will probably try to force an early start. Local jobbers quote 80 and 90 per cent. discount on small lots of Glass, and 85 per cent. discount for carload lots. The American Window Glass Association's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more.....	85 & 5	85 & 5	.....	85 & 5
Carloads.....	80 & 20	80 & 20	85 & 2½	80 & 20
3000 boxes or more.....	85	85	.....	85 & 2½
1000 boxes or more.....	.....	.....	85 & 10	.....

These prices are subject to freight allowance.

**Paints and Colors.**—*White Lead.*—Demand for White Lead is still continues satisfactory, with an apparent increase in consumption. The decrease in the price of Linseed Oil has had no effect upon Lead, which is firm at former quotations of 6¼ cents in lots of less than 500 pounds, and 5½ to 5¾ cents for 500 pounds and over.

**Oils.**—*Linseed Oil.*—The Linseed Oil market has not recovered during the past week, and is if anything in a more demoralized condition than a week ago. City crushers are holding Raw Oil at 43 cents in five-barrel lots, and 44 cents in lots of less than five barrels. Outside crushers and jobbers are shading these prices 3 to 4 cents. It is difficult, however, to find carload buyers willing to purchase at 36 to 38 cents. A sale of 300,000 gallons of State Oil in tank cars is reported for Cleveland delivery from August to August, 1900, at 34 cents.

## American Steel & Wire Company and the Manufacture of Horseshoes.

THE AMERICAN STEEL & WIRE COMPANY have taken over the Pittsburgh Horse Shoe Company of Pittsburgh. The latter concern were organized in Pittsburgh some time since with Wallace H. Rowe president and W. C. Reitz secretary and treasurer. Owing to the fact that the American Steel & Wire Company have taken over the Shoenberger Steel Company, including their Horseshoe business, it was deemed inadvisable to go ahead with the completion of the new plant of the Pittsburgh Horse Shoe Company, at Glassport, near Pittsburgh, and the entire interests of that concern have been absorbed by the American Steel & Wire Company and all work stopped. The Horseshoe machines under contract by the Pittsburgh Horse Shoe Company will be installed in the Shoenberger plant, at Pittsburgh, as it is the intention to very materially increase the capacity of that plant for the manufacture of Horseshoes. Other contracts for buildings, &c., made by the Pittsburgh Horse Shoe Company will be canceled.

## Hardware Club Manual.

THE Hardware Club Manual for 1899 has just been issued, having been compiled by Alfred D. Clinch as heretofore. It contains the names of the officers and committees of the club, constitution, by-laws, house rules, articles of incorporation and names of the resident, non-resident and deceased members.

## An American Manufacturer's Impressions of India.

CONTINUING the series of articles on Japan, China and the Straits Settlements already published in these columns, we now give from the same source a chapter on India and Ceylon, the latter being a crown colony of Great Britain, but entirely independent of the British Indian Government.

### Main Distributing Points.

The principal distributing points named in the order of importance are Calcutta, Bombay, Colombo, Madras and Rangoon.

### Individual Wants few but Aggregate Large.

While the wants of the individual native are very few there are sufficient articles of foreign manufacture required in a population aggregating nearly 300,000,000 to make a very important import business, and the wants of the European living in India temporarily or otherwise sufficient to make a large volume of business.

### America and Germany Progressing in That Market.

Most of these wants seem to have been supplied heretofore from Great Britain, but American and German goods have made a great deal of progress in the last five years.

### Business Controlled by Great Old Fashioned Houses.

Much of the business, both export and import, is in the hands of the great old fashioned houses, some of which date back to the time of the East India Company, and who do a large indent business in staple lines for the native houses, who distribute the imports through the country.

### Hardware and Machinery Houses in Principal Cities.

There are excellent European Hardware and Machinery houses in all the cities named, and cotton and jute spinning machinery forms a large portion of their business.

### Caution Necessary in Dealing with Native Houses.

There are also a great number of native houses, especially in Bombay, and while some of the houses are reliable and upright there is need of the greatest caution in dealing with them, and the safest rule for any manufacturer is to sell goods for India to such houses as he personally knows.

### A Fine Government Railroad System.

The railroad system of India is more extensive than any outside of America and Europe. It is operated by the Government exclusively and is in many ways a model, especially as concerns durability of construction and engineering excellence. Distribution in the interior is easily accomplished by means of the railroad facilities and inland water ways, the latter being practically all rivers.

### Magnitude of Tea Planting Industry.

The business of tea planting in India and Ceylon has shown a progress in the last few years almost unequalled by any similar industry, and it is believed there is an opportunity for American manufacturers of tea rolling machinery to introduce their product into these countries.

### Large Exporters of Hides and Skins.

India is one of the principal sources for the supply of bullock hides, goat skins and other raw leather products for the American market.

### Jute and Burlaps for the World.

India is also the principal source of the world's supply of jute, and the manufacture of gunny sacks and burlaps near Calcutta is one of the largest industries in India. Exports of indigo, cocoa and plumbago, the latter from Ceylon, are also of importance.

### A Field Neglected by Our Manufacturers.

The publication of the article on the Straits Settlements has recalled the remark of a merchant in the East that he was surprised that American manufacturers had not taken more interest in the manufacture of machinery for the preparation of coffee and tea for the market. In his opinion there was considerable opportunity for such manufacturers in coffee pulping machinery, tea conveyors and driers, &c.



## New England Iron and Hardware Association.

000; silver ore, \$3,520,000; nickel, \$970,000; lead ore, \$1,450,000. It will be seen from this list that what we

**A**T the regular monthly dinner of the New England Iron and Hardware Association, at Young's Hotel, Boston, on Tuesday, the 16th inst., Osborne Howes of the Boston Chamber of Commerce delivered an address on "Our Trade Relations with the Dominion of Canada." Referring to the importance of Canada as a market for the sale of American goods, Mr. Howes said:

Man for man the Canadians are the best customers that the American people have. Canada purchased of us last year goods to the value of \$80,000,000, a very large part of these manufactured wares, while we purchased from Canada merchandise to the value of a little over \$30,000,000, this made up chiefly of raw materials and food supplies. The Canadians sent us the crude materials which were needed by our manufacturers, while we supplied to them the products of our foundries and workshops. The exchange was of advantage to both countries, but chiefly to our own, because we were able through what Canada sent to us, and through Canadian demands, to find employment for a large number of our wage earners and profit to our manufacturers.

### The Purchasing Power of Canada.

When it is taken into account that in the year 1898 the 5,500,000 people who live in the Dominion of Canada purchased of us goods to a greater value than the combined demand of South America, Central America and the West Indies—an area occupied by many millions of people—some idea can be formed of the purchasing power of these neighbors of ours, and the desirability of not permitting any slight obstacle to stand in the way of a thorough possession of their trade.

### Dispossessing England.

One feature in our recent trade with Canada is the manner in which we have succeeded in dispossessing the English of markets which they had previously held, and in this respect no experience is more striking than that afforded in our exports of manufactures of metals and of those wares of which iron and steel form an important part. In 1894 we sold in Canada \$250,000 worth of Carriages, Carts and Bicycles. In that same year the English sold \$230,000 worth of similar articles. In 1898 our sales of Carriages, Carts and Bicycles in Canada footed up to \$1,240,000, while the English sales diminished to \$14,000.

In 1894 we sold in Canada of the manufactures of copper \$540,000 worth; in 1898 \$1,350,000. In 1894 we sold Agricultural Implements there to the value of \$235,000; in 1898 this trade had increased to the amount of \$1,060,000. In 1894 we sold iron and steel machinery, including locomotives, to the value of \$1,315,000, the English selling in the same year goods of a similar kind to the value of \$4,900,000. In 1898 our sales under this classification had increased to \$2,870,000, while the English sales had fallen to \$2,040,000.

In 1894 we sold of manufactures of iron and steel goods to the value of \$3,460,000, the English sales of similar articles in that year having a value of \$7,215,000. During the year 1898 our sales increased to the amount of \$10,250,000, while the sales of similar English wares decreased to \$4,045,000.

Our total sales of metals, and manufactures of the same in Canada in the year 1894 represented a total value of \$6,650,000. In 1898 these sales rose to a value of \$17,010,000, an increase in four years of nearly 300 per cent.

### American Purchases.

During this short interval our purchases in Canada of metals made an even larger relative advance. Thus in 1894 we purchased these to the value of \$2,124,000, while in 1898 our purchases footed up to \$11,048,000. These purchases were chiefly as follows:

Copper ore, \$840,000; gold quartz and dust, \$3,556,

took from Canada was

### Distinctly Raw Materials

which were needed in our smelting works, foundries and factories to serve as the basis of production. These Canadian goods represented the minimum of labor; ours in most cases the maximum, and the exhibit in this respect made in the line of metal trade can be nearly duplicated in other departments of industry.

If conditions were certain to remain in the future as they have been in the past we might well afford to let matters rest as they are. But although we have obtained such a large control of the Canadian market, cutting the purchases made in England down to about \$30,000,000, as against our sales of \$80,000,000, it is improbable that we shall continue to enjoy these advantages in the future unless it is found that our competitive ability is far greater than we have ever been willing to admit. The Canadians nearly two years ago announced their willingness to accord a reduction of, first, 12½ per cent. and then 25 per cent. in their rate of duty to all countries that made to them what were considered

### Equivalent Concessions.

The only great nation prepared to take advantage of this proposition was England, which for years past has allowed all Canadian products, with the exception of whisky, to enter duty free. English manufactures now enjoy a differential in the duty equivalent to 25 per cent. As the average rate of duty on, say, metal wares in Canada is about 30 per cent., this represents an advantage to the English manufacturer and merchant of \$7.50 on a bill of goods of \$100.

If in the face of this handicap we can still continue to drive England from the Canadian market by the substitution of our goods for hers, then surely there is no market in the world where we cannot hold our own in the face of all competition; and the need of a protective tariff is but a figment of the imagination.

Although we have shown that we can meet England on equal terms and deprive her of trade that she has hitherto enjoyed, one may well doubt whether with these disadvantages against us we can continue for any long time to maintain our ascendancy.

### Obstacles in the Way.

The joint High Commission which was appointed a year ago for the purpose of endeavoring, among other things, to arrange a reciprocal trade treaty with Canada, has encountered serious opposition in this department of its work based on the claims made by the lumber, fish and coal interests of the United States, that no concession of any importance shall be made in the duty rates now imposed upon Canadian commodities coming under these three headings. If it were not for the Northwestern Lumber Association and one or two organizations of that character in this country, the coal mining interests of Maryland and West Virginia and the fishing interest of Gloucester, there would be little difficulty experienced in framing a reciprocal trade treaty which would open the Canadian market to us in a manner that would make English competition in it a matter of minor significance. But not only do the interests named block the way, but they threaten by their resistance, if it is maintained and made effective, to precipitate a tariff war between the two countries, in which, as by far the larger seller, the United States could not fail to be the larger loser.

### Duty of the Association.

You, gentlemen of the New England Iron and Hardware Association, who represent one of the greatest and most flourishing lines of trade that we have with Canada, should do everything in your power, both as individuals and as an association, to force the authorities in Washington to realize that they cannot afford to put your trade in

jeopardy. Last year we bought in Canada \$9,900,000 worth of wood and manufactures of the same, \$3,000,000 worth of coal and \$2,950,000 worth of fish. It will be seen that the sales of manufactured metallic goods—that is, the goods in which you were interested, formed a more considerable item of trade than the purchases made by our people in all the three lines of industry, fish, coal and wood, which represent resistance to reciprocal trade with Canada. If these three interests can unite in opposition, is it not possible, in view of your larger interests, for you to bring force to bear in advocacy of reciprocity influences which will neutralize the efforts of those who are opposing you and who are threatening you with a serious loss of trade?

#### Adoption of Resolutions.

At the close of the address the following resolutions were unanimously adopted:

"Whereas, The trade between the United States and Canada is of great advantage to the people of the United States, and

"Whereas, The large demand for our goods that now exists in the Dominion might be still further increased by a properly drawn reciprocal trade treaty between the two countries; therefore be it

"Resolved, That the New England Iron and Hardware Association earnestly petitions the Government at Washington to do all that it can in furtherance of this much desired end.

"Resolved, That copies of this resolution be sent to the President, the members, on the part of the United States, of the Joint Anglo-American Commission, and to the Senators and Members of the House representing this section in the Congress of the United States."

### Southern Hardware Jobbers' Association.

As already announced, the ninth annual convention of the Southern Hardware Jobbers' Association will be held at Atlantic City, N. J., June 14, 15 and 16. A general invitation is extended to the manufacturers who cater to the Hardware jobbing trade of the United States, and also to the Hardware jobbers themselves, whether they be located in the South or in other sections.

On account of the many attractions at Atlantic City and the delight with which the gentler sex look forward to a visit to that inviting spot, the officers of the association have taken special pains to induce the gentlemen attending the convention to bring their families with them, and a very large number of ladies will, it is expected, accompany the delegates to the meeting.

We are requested to state that the manufacturers and outside jobbers who attend the convention are not expected to extend any courtesies or entertainment for the benefit of the members of the Southern Association, nor will the members of the association go to any extra trouble or expense by reason of the manufacturers and others being in attendance at the meeting. All are invited to the convention solely for the purpose of promoting more intimate social relations and consequently a more friendly feeling. They will be cordially received by the members of the association, and will be welcome to take part in the conferences and deliberations of all sessions excepting those which are of an executive character. The morning session of each day of the convention, as well as the afternoon session of the 16th, will be devoted to joint sessions of the jobbers, manufacturers and their representatives and such other visitors as may care to listen or take part in the proceedings. A number of timely and interesting subjects will be taken up for discussion, and the meeting promises to be an unusually interesting one.

We are advised by Jas. J. Mandlebaum, president of the association, that the indications point to a representative attendance of the membership and also a very large attendance of manufacturers and their representatives.

The Railroad Passenger Association have given the association reduced rates, upon a basis of one fare and a third for the round trip, on the certificate plan. Those who contemplate attending the convention, and

who are not familiar with this arrangement, can obtain particulars from their local ticket agent, or from the secretary-treasurer of the association, C. B. Carter, Little Rock, Ark.

### Passing of the Personal in Business.

W. R. BELKNAP of the old established Hardware house of W. B. Belknap & Co., Louisville, Ky., is a frequent contributor to the editorial columns of the famous *Courier Journal*. The following interesting article by him on a special phase of current business appeared in a recent issue of that paper:

One of the unpleasant features of the huge combinations now making in nearly every branch of manufacturing is the obliteration of the personal element. This is no small loss, for our social instincts affect transactions in the world of trade more than most people admit or suspect.

There was a good deal of comment a year or so ago on the fact that the employees of a large steel company were said to be simply known by numbers on the books of the company as they stood at their work benches, and, in short, all about the premises. No account was taken of either Christian or surname. By writers on the subject disparaging comparisons were drawn freely between this and the old time methods when every master knew his apprentices and workmen by name, was aware of the condition of their families, knew when the weddings were to come off, when the babies were born and when deaths were expected. The change in these modern days was counted to be one of degradation and met with unstinted reprehension.

This tendency, however, once begun, is being carried still further now in the combinations which are rapaciously absorbing mills and factory properties, for it has invaded the offices and sunk the individual into the dead level of the "department." Heretofore, when a buyer placed an order, his choice of the mill indicated an individual preference in itself. This mill's output was of better quality than other mills, or its products were furnished more promptly, or there was some one connected with the concern in whom the buyer had implicit confidence, and whom he elected to deal with. But how is this sentiment to be indulged when, as latterly, letters come back signed by the typewriter simply "Sales Department," "Buying Department" or "Order Department," with no name whatever attached, not even by rubber stamp as an evidence of good faith?

Formerly, when the buyer went to market, after corresponding perhaps for a year or more, he met the man who had been signing the letters that had been coming to him. He matched up the signature with the man. He got to know either the heads of the firm or the member of it who was head as far as he was concerned. He learned to know the secretary personally and the man who filled the orders, possibly the shipping clerk and bill clerk. It all made a picture in his mind when he went home, of a business family, and he felt inspired by this contact with a circle of which he, the buyer, was no mean part.

Now, when his order goes in to the Great Combined Consolidated Universal Trust Company, it is impossible for him to follow his missive in imagination even, or to know before whose cold, unsympathetic eyes it will fall. He is persuaded in his soul that there will be no glad recognition of it. Ten chances to one it will be fed to some wire basket and shot down a chute, or impaled on a file with others not near so important, while the president or secretary, who ought to have attended to it and seen that all instructions to ship promptly, &c., were carried out to the letter, is off at the club sipping a pousee café or reading the ticker tape. Any personal appeal for attention to his order he knows will never be noticed. His friend is no longer at the other end of the line. There is no saying at which of the forty or fifty mills which form the trust his order will find lodgment. What are we to have to compensate us for the loss of this happy personal intercourse of the olden time?



## A. G. Spalding & Bros. and the Northwestern Retail Hardware Association.

**A** REPRESENTATIVE of *The Iron Age* called upon A. G. Spalding at his down town office and brought to his attention a letter which appeared in *The Iron Age* of May 18 signed by J. W. Clark, secretary of the Northwestern Retail Hardware Association, and asked what he had to say on the subject. Mr. Spalding stated that he believed the action of this association was hasty and that due consideration had not been given to the subject of the policy that the firm of A. G. Spalding & Bros. had adopted for the protection of the retail dealers, and he expressed considerable surprise that intelligent business men should attempt to control the actions of manufacturers to the extent of saying to them to whom they should and to whom they should not sell the goods of their manufacture.

As to this particular case of the Northwestern Retail Hardware Association, he submitted a copy of a letter that he had written to J. W. Clark, secretary of the association. He also expressed a desire that the whole matter should be thoroughly ventilated so that every Hardware dealer in the country should understand the reasons for the action of this association, believing that intelligent retail dealers would condemn a system of boycotting as unfair to both the manufacturers and themselves. Mr. Spalding's letter is as follows:

NEW YORK, May 27, 1899.

MR. J. W. CLARK,

Secretary Northwestern Retail Hardware Association:

DEAR SIR.—I have before me several articles that have appeared in *The Iron Age*, one in the issue of April 27, headed "Why Spalding's Policy Will Fail," another in the issue of May 4, which was my letter to the editor of *The Iron Age*, in which I stated that I was not aware that my firm had been placed on the "unfavorable" list of your association and that I did not recall having seen any correspondence between your association and my firm; also the article that appeared in the May 18 edition, containing a letter from you giving your reasons for placing my firm on your "unfavorable" list.

I feel that great injustice has been done our company by your association, and briefly will state our position as regards the retail dealers and the protection we are giving them under our new policy of merchandising.

### What the Spalding Policy Seeks to Accomplish.

This new policy provides fully for the protection of legitimate dealers, both as to the prices they pay for the goods and the prices at which they are permitted to sell them, inasmuch as by this plan we do not sell our goods to large stores at any lower prices than we sell to the smallest retail dealer, and we do not permit the large stores to sell our goods at any lower prices than the smallest dealer is permitted to sell them. This we believe to be the best protection that can be given to the retail dealer and the results in practice are more satisfactory than the system that you are attempting to enforce—viz., to prevent manufacturers and jobbers from selling department stores. We do not believe that any other manufacturer in this country has made as great an effort as we have to protect the retail dealers handling a complete line of merchandise. A number of houses who manufacture specialties have adopted a similar method of merchandising and our investigation shows that they have met with remarkable success, notably E. & W. collars and cuffs and Kodak Cameras, and both of these articles, we understand, are handled by many large department stores, so we consider your ac-

tion in placing our house upon your "unfavorable" list as unfair and detrimental to the interests of the very people you desire to protect.

### The Disputed Point.

The only reason that you have given and, we presume, the only reason you have to offer for placing our house on your "unfavorable" list is that we see fit to sell our goods to so-called "department stores and catalogue houses," and you suggest that we drop that class of trade. This we positively decline to do, for we do not think you have any right to dictate to any manufacturer the class of trade he shall sell, and especially do we consider that you have no right to dictate to us that we should not sell department stores.

### The Principal Distributors of Athletic Goods.

As a matter of fact, while Hardware dealers are large distributors of Athletic Goods, they are by no means the principal class of trade that distributes that line of merchandise. A large quantity of Athletic Goods is distributed through retail book and stationery dealers, druggists and general stores. Hardware dealers rank third or fourth in importance as distributors of Athletic Goods. For that reason alone we think you have gone out of your way in selecting our concern as "unfavorable."

### Department Stores and Catalogue Houses Defined.

My understanding of "department store" is one that has more than one department or handles more than one line of merchandise, and in my opinion a general store in the country is as much a department store as a concern like "The Fair" or Siegel & Cooper Company of Chicago, the only difference being that "The Fair" or Siegel & Cooper Company have a greater number of departments and carry a very much larger stock. My definition of "catalogue house" is one that issues a catalogue in one form or another, and as nearly every large concern that is alive and active issues a catalogue in some form, your action would discriminate against every such live and progressive concern. If we should comply with your conditions we should have to refuse the orders of every large general store and also the orders of every house that issues a catalogue in any form. This we cannot do.

### A More Critical Study of the Spalding Plan Invited.

We believe a majority of the members of your association who handle our goods will be very much annoyed over your action, and their business in the class of goods that we manufacture will be seriously interfered with if you persist in your attempt to prevent their purchasing goods from us. We also think that if you will make a thorough study of our present plan of merchandising you will arrive at the conclusion that we come nearer the mark in protecting the retail dealer by this plan than has been done by any other method.

### A Controversy Not Desired.

We do not wish to have any unpleasant controversy with your association, but the action it has taken against us is so unfair and selfish we certainly should make a strong protest against any such attempt at dictation as to whom we should or should not sell. We feel confident that, having justice and right on our side and with a plan that goes so much further in protecting the retail dealers than your attempted boycotting system does, in the end we would have the support of the trade generally and, we believe, many of your own members. If we should accede to your wishes and drop the trade of department stores and catalogue houses what would prevent some other association of retail dealers from saying to us that we should not sell our goods to druggists or stationery houses or any other class of trade that might not be members of their particular association?

In conclusion let me say that the whole system of

boycotting is so un-American and unpopular that we believe your association is laying itself open to most severe criticism by all fair minded business men.

Yours truly,

A. G. SPALDING & BROS.,

By A. G. SPALDING, President.

### The Avery Stamping Company.

THE trade will observe the page advertisement in this issue of the Avery Stamping Company, Cleveland, Ohio, in which an illustration of their extensive works appears. This company were among the pioneers in heavy metal stamping in the United States, and do all kinds of pressed metal work from the lightest to the heaviest, both hot and cold. The company started in business in 1885 in a modest way, and have obtained their present prominent position by energetic and careful attention to the details of the business. Their plant consists mostly of brick and iron roof buildings, covering about 3 acres, but they have more property adjoining for additions when necessary. The works are well situated, being on the Lake Shore and Pennsylvania railroads, and having splendid lake facilities, as well as switching facilities to all the leading trunk lines in the country. They inform us they can press the lightest metals to metals 1 inch thick into cylinders and other shapes. Their works are equipped with all kinds of light and heavy blanking and drawing presses, steam hammers and special furnaces for drop forge and other hot work. They have a number of large hydraulic presses, one having a capacity of 500 tons pressure to the square inch. The greater part of this machinery was made in their own machine shop, which is referred to as complete in every respect, enabling them to make their own tools, dies, presses, &c.

Besides heavy metal stamping they also manufacture the well-known Never-Break Steel Hollow Ware, all their goods being marketed under their own brand and trademark "Never-Break," which is copyrighted in this and foreign countries. Other lines they manufacture are the Never-Break Post Hole Diggers, Shovels, Scoops and Spades, Garden Trowels, Washers, Felloe Plates, Tanks, Cylinder Heads, patented Seamless Elevator Buckets for elevating grain, salt, sugar, tan bark, coal, ore, ashes, &c. They have a large tinning plant where they tin their own goods and also do tinning for others. The company also do a great deal of heavy pressed steel work for railroads and Agricultural Implement manufacturers, being equipped for anything in that line.

### The Kelly Axe Company.

THE KELLY AXE COMPANY, Alexandria, Ind., are claimed by a local paper to be capable now of turning out three-fourths of all the Axes used in the world. The improvements recently made in the plant are described as follows:

The new buildings comprise a store room for boxes and handles, 200 x 140 feet; the new wareroom, 250 x 80 feet, and the carpenter's shop, steel fitting shop and shear shop combined, 100 x 50 feet. An extension built on the forge shop is 120 x 80 feet; the polishing and tempering room has an addition 100 feet long and 40 feet wide; the extension of the heading shop is 150 x 80 feet, and the addition to the packing room is 100 x 70 feet.

In these new buildings \$45,000 worth of modern machinery has been set up and connected by experts from the manufactories in the past few weeks, and will be set to work as rapidly as operatives can be secured.

An idea of the extent of the improvements is afforded in the fact that a single new belt put in cost \$1300. It is 5 feet wide, 270 feet long and weighs about 1500 pounds. To make the belt required the rawhides of about 50 full grown steers. The belt is connected with a new Corliss engine weighing 90 tons and of 1200 horse power. The two other principal engines have been set in new position, and the three combined have an indicated capacity of 2500 horse-power. Besides these are two smaller en-

gines. Steam for all the cylinders is generated in four batteries of two boilers each.

In the forge shop 17 new trip hammers are being set up. Eleven of these are already in working order, and the remaining six are yet to be placed. New machinery has been added all over the factory, increasing the capacity and facilitating the operation in all the departments.

### Illinois Retail Hardware Dealers' Association.

FOLLOWING the example of a number of other States a movement has been inaugurated to organize a State association in Illinois. The initiative is being taken by the Chicago Retail Hardware Dealers' Association, a strong and influential organization who have accomplished not a little in bringing about a healthier condition of affairs locally. The association have appointed their energetic secretary, Ehler Goettsche, and Frederick Kurtz a committee to make arrangements for the formation of a State association. The committee will soon issue a call for a State convention, to be held in Chicago probably in August. Mr. Goettsche, who is to be addressed at 1049 Milwaukee avenue, Chicago, invites correspondence from Hardware dealers throughout the State who are desirous of affiliating themselves with an organization of this sort. It is to be hoped that a goodly number of the merchants of the State will see their way clear to announcing their interest in the movement, which has for its object the correction of abuses with which Hardwaremen are only too familiar.

### Price-Lists, Circulars, &c.

J. E. BOLLES IRON & WIRE WORKS, Detroit, Mich.: Pocket edition containing staple varieties from their complete catalogue, with new designs added in leading lines.

HAYES PUMP & PLANTER COMPANY, Galva, Ill.: Agricultural Implements.

INDESTRUCTIBLE POST COMPANY, Brazil, Ind.: Keith's Combination Pocket Memorandum Book.

UNION CARRIAGE COMPANY, St. Louis, Mo.: Buggies, Phaetons, Surreys, Half Platform Spring Wagons, &c.

MERIDEN CUTLERY COMPANY, Meriden, Conn.: Catalogue No. 11 of Table Cutlery, showing a full line of staples and several novelties.

THE HOLMES & EDWARDS SILVER COMPANY, Bridgeport, Conn.: Catalogue No. 25, relating to Spoons, Forks, Knives, &c.

### Trade Items.

OTTO H. WITTE, president of the Witte Hardware Company, St. Louis, was a passenger on the "Barbarossa" of the North German Lloyd, which had to return to port Thursday, May 18, but a few hours after sailing, on account of fire in the hold. The steamer again cleared New York for Bremen Monday, May 22.

U. T. HUNGERFORD BRASS & COPPER COMPANY, 121 Worth street, New York, although crowded with orders from manufacturers of metal goods all over the country, who are extremely busy, point to the fact that the capacity of their factories is such that the trade through them has suffered little if any embarrassment through delays in shipping. What they wish to emphasize is that they are prepared to ship promptly from any of their several factories or stock staple goods in the way of Brass and Copper Sheets, Rods, Wire, Tubing and other commodities in the extensive variety of goods they deal in.

FRANCIS H. LOSS, JR., 46 Murray street, New York, has removed to 43, opposite, where he has a portion of the street floor. He deals in House Furnishing Specialties of foreign and domestic manufacture, and while carrying less stock now has a full line of samples as the direct representative of a number of manufacturers in a position to sell the large trade.



THE NICHOLSON FILE COMPANY, Providence, R. I., call attention prominently in their advertisement, occupying a colored page in this issue to their four factories and to the five brands of files which they are manufacturing: "X. F.," American, McClellan, Great Western and Nicholson. They also allude to their catalogue, containing 450 illustrations, and their File Philosophy, which will be sent to those applying for it.

THE TRADE will observe the colored page among the advertisements in this issue in which Butts & Ordway Company, Boston, illustrate the "B. & O." line of tools and supplies for Blacksmiths and Wagonmakers. These Tools include Foot Vises, Tire Upsetters, Quad Punches and Iron Shears. Their Never-Slip Cork Pads and the Larrabee Roller Chafe Irons are also shown, and their new catalogue "A" will be sent on application.

NEAL & BRINKER, 168 Church street, are New York City and export agents for the Wagner Mfg. Company, Sidney, Ohio, makers of Wagner Hollow Ware. A catalogue recently issued by the company shows the three distinct lines of Hollow Ware they are manufacturing—Aluminum, Polished Iron and Nickel Plated.

S. F. MYERS COMPANY, 48 and 50 Maiden lane, New York, are now mailing to their customers and will forward on application to any in the trade, a supplementary issue to the "New York Jeweler," their annual catalogue of nearly 1000 pages, which embodies a number of very reasonable goods of the latest designs. Drew L. Gorsline is now at the head of their Camera and Photographic Supply department. Mr. Gorsline has been for over ten years with the well-known firm of E. & H. T. Anthony, and is considered one of the most competent men in the photographic line. The large increase in the business of this department has compelled the company to enlarge it and engage a number of new assistants. The advertisement of the company will be found on another page.

### Among the Hardware Trade

N. C. Madsen has purchased a half interest in the business of Frank Bradl at Ludington, Mich., and the style has become Bradl & Madsen.

The Hardware store of J. H. Brandow & Son at Middlesex Center, N. Y., was destroyed by fire a short time since. The loss was \$4300, with insurance of \$2000.

Hamlin & Keenan have succeeded Wm. Hamlin at Charlotte, N. Y.

Herman G. Miller has recently opened up in the Hardware, Stove, Tinware, Agricultural Implement, Sporting Goods and Furniture business at Wilton, Wis. Mr. Miller's main storeroom is 41 x 76 feet, with a floor above 20 x 76 feet.

W. A. Stuart & Co. have taken possession of their new building at Livermore Falls, Me. The building is attractively and conveniently arranged. One of the features of the store is a Glass counter which holds the sizes from 6 x 8 up to 28 x 40. Other counters at the front of the store have glass fronts and are used for the display of Door Sets and House Trimmings. Another is devoted to Nickel plated goods. A handsome steel ceiling adds to the finish, which is brown ash.

John Brett has sold out his business at Millington, Mich., to Squires Bros.

Eckhart Bros. have succeeded J. E. Eckhart at Benson, Ill. The new firm have added the sale of lumber to their Hardware, Stove and Implement business.

Bidlake & Kinchin have succeeded Henry Bidlake at Osnabrock, N. Dak. They are intending to double the quantity of stock carried, and will also conduct a tin-shop.

J. J. Stummers, Avilla, Mo., have purchased the Hardware part of the stock of A. H. Woodard & Co., Golden City, and removed the goods to Avilla.

T. R. Hayton is successor to Hayton & Dunlap at La Conner, Wash. Mr. Hayton has a number of improvements in the store in contemplation.

S. M. Rhodes has succeeded Long & Rhodes at Ashland, Ore.

Putnam, La Fountain & Co. have purchased the business of Lawrence, Tinkler & Co. at Springfield, Vt.

W. N. Grubb has bought the Shelf Hardware, Stove and Tinware stock of F. McClain at Silverton, Ore.

A. H. Graves has sold out his stock at Pleasanton, Iowa, to Buck, Keshler & Co., who will continue at the old stand.

E. D. Ely is successor to Ely & Johnson in the Hardware, Stove and Harness business at Axtell, Kan.

A. W. Hansler has retired from the firm of Hansler Bros. & Co., Pomona, Cal. The style will continue unchanged.

Wilcox Bros. have succeeded Myron C. Wilcox at Griswold, Iowa.

E. H. Frenzel is now engaged in business at Augusta, Kan., having removed his stock from Plattsburgh, Mo.

E. G. Vore has lately opened up in the Shelf Hardware, Stove and Agricultural Implement business at Deedsville, Ind.

T. J. Coughlin Hardware Company are successors to Tayman-Oberly Hardware Company at Topeka, Kan.

The Brown Hardware Company, Belton, Tex., have been incorporated with a capital stock of \$20,000. The company are remodeling and improving their store and putting in a fine plate glass front.

Cawthorn & Cawthorn have succeeded A. H. Cawthorn at La Junta, Col.

J. W. Murchison & Co. have succeeded J. W. Murchison in the wholesale and retail Shelf and Heavy Hardware, Stove, Tinware, Agricultural Implement and Sporting Goods business at Wilmington, N. C.

Charles Boesel & Son, dealers in Hardware and groceries, New Bremen, Ohio, have dissolved partnership, the senior partner retiring. Charles J. Boesel will continue at the old stand.

The Hardware and Lumber store of Prunty & Iseminger, Grimes, Iowa, was destroyed by fire a short time since. The loss was fully covered by insurance. The firm have rebuilt and are again doing business.

Huston & Bogue are successors to Simpson & Huston at Corvallis, Oregon.

D. W. Ray & Co. have succeeded C. M. Dennis in the retail Hardware, Stove, Implement, Wagon and Bicycle business at Edwardsburg, Mich.

McCray Bros. have succeeded Brigham Hardware Company at Corry, Pa., in the wholesale and retail Hardware, Stove and Agricultural Implement business. The new firm have added some new stock and capital to the amount of \$2000.

Elch & Co., Bonaparte, Iowa, have been succeeded by W. S. & A. V. Blackford. The business has been removed to a newly fitted room three doors east of the old location. A stock of Heavy and Shelf Hardware, Stoves, Tinware, Sporting Goods and Agricultural Implements is carried.

Arthur Westgate, Riceville, Pa., is building a new store, which he will occupy with his general Hardware business on completion.

C. P. Bigley, of Rising Sun, Ohio, has purchased the business of T. F. Carroll at Huntsville.

W. D. Milliken, Walnut, Ill., has added a line of Hardware and Sporting Goods to his former lumber business.

Parks & Stow, Moline, Ill., have dissolved, and H. H. Parks is continuing the business alone.

Beattie Hardware Company have succeeded Halvern Hardware Company at Beattie, Kan.

Josiah N. Wait, junior member of the firm of Wait Brothers, Hardware and Stove dealers, Old Chatham, N. Y., died on the 9th inst. The firm name will continue as heretofore, George N. Wait, son of the deceased, assuming his father's position in connection with John B. Wait. The firm have been in business for the past 39 years.

George Parlow has withdrawn from the Gouverneur Hardware Company, Gouverneur, N. Y., and the business will hereafter be conducted by P. J. Parlow and H. L. Drake, without change in style.

The Hardware firm of Higgins & Webster, Warsaw, N. Y., have dissolved, and Webster & Case are successors at the old stand.

B. L. Van Meter is successor to Van Meter & Brown at Maysville, Mo.

I. L. Wade has purchased the business of W. D. Moren at Lock Spring, Mo.

### Miscellaneous Notes.

#### New England Butt Company.

New England Butt Company, Providence, R. I., in addition to manufacturing machinery for textile workers, are also making in their builders' hardware department locks, knobs, escutcheons, cast butt hinges, bell pulls, &c. Particular attention is directed to the Prouty patented rigid door knobs and locks, of which they are sole manufacturers. In their house furnishing department they are making sad, laundry, polishing and other irons, coal and ice tongs, waffle irons, tea scales and weights, hitch weights, tobacco cutters, Prouty's Peerless force pump, cistern covers and tops, &c. Their builders' hardware line is shown in a 108-page catalogue recently issued.

#### New Models of Honest Cycles.

Iver Johnson's Arms & Cycle Works, Fitchburg, Mass., have during the past week brought out two new models of their Honest cycles, listing at \$25 and \$35. The company advise us that hardly had the fact become known when orders for these wheels began to come in, the purchasers not even seeing the samples. This confidence of the trade is referred to as very gratifying to the company, who remark that it is not misplaced, the new models having the same general construction as the higher priced ones, drop forged connections being used throughout.

#### H. F. Brammer Mfg. Company.

The H. F. Brammer Mfg. Company, Davenport, Iowa, have made an improvement in the frame of their O. K. washing machine, which makes it run much lighter and almost noiselessly. They are turning out 350 machines each week and have been barely able to keep up with their orders, but they are now making arrangements to turn out a still larger number so as to be able to ship promptly.



The Dandy Screw Driver.

A large part of their product is exported to foreign countries. They are bringing out a new specialty known as the Rockaway, which can be attached to any ordinary rocking chair and makes it not only a much more comfortable chair for rocking but also makes it a reclining chair. A foot rest is attached.

#### Leather Washers.

The H. B. Sherman Mfg. Company Battle Creek, Mich., makers of the Sherman brass hose clamps, are now manufacturing leather washers. On receipt of samples of the size and kind of leather washer desired, together with an estimate of the number required, they will be pleased to submit inside prices. They call particular attention to the quality of the material which they use, as being best quality oak tanned leather.

#### H. D. Smith Company.

H. D. Smith Company, Plantsville, Conn., have recently commenced the manufacture of Smith's improved axle clips, wide center pattern, for Bradley shaft couplings. These are made  $\frac{3}{4}$ -inch shank from No. 000 to 0, with flat part from 3 to 4 inches long. A wide center axle clip for express and truck wagons is also made with 7-10 inch shank with flat part from 5 to 10 inches long. Among other new goods are dash fender collars for broughams, also coach draw bar irons. The latter include Futchel and coach draw bars.

#### Ratchet Die Stock.

The Sandwich Enterprise Company, Sandwich, Ill., have brought out a new size of ratchet die stock, especially suited to gas service work and other duty where the requirements do not exceed  $\frac{3}{4}$ -inch pipe. It is constructed

after the design of the company's regular ratchet stock illustrated in *The Iron Age* December 8, 1898, but is made small and light and easy to carry. A reamer is furnished to be used with or without the die stock.

#### Yankee Tools.

North Bros. Mfg. Company, Philadelphia, Pa., are providing, post paid, sets of sheet metal signs to dealers handling their Yankee tools. The set includes three signs,  $4\frac{3}{8} \times 9\frac{7}{8}$  inches in size, one each illustrating their Yankee ratchet screw driver, Yankee automatic drill and Yankee spiral ratchet screw driver. The illustrations and letters are raised and finished in various colors. The signs present a handsome appearance and are calculated to attract custom. The company issue an illustrated catalogue of these goods, known as The Yankee Tool Book.

#### Aluminum and Brass Goods.

The Patton Mfg. Company, Columbus, Ohio, in addition to a line of cast aluminum hollow ware, some of which we illustrate on another page, will turn out a general line of brass goods including the manufacture of acetylene gas generators for house and general lighting purposes, and a specially constructed generator adapted for lighting with acetylene gas railroad locomotives, railroad coaches and cabooses, together with a line of railroad hand lanterns and bicycle lamps to burn acetylene gas. They also manufacture cast aluminum stove reservoirs, aluminum warming or heating tables for hotels, &c., and aluminum letters and signs of every description. Also bicycle chain guards in aluminum. They likewise make aluminum, brass or bronze castings from any pattern desired, and make a specialty of novelties and articles of all kinds in aluminum or brass.

#### The Dandy Screw Driver.

The Star Brass Works, Kalamazoo, Mich., are putting on the market the Dandy screw driver, which is herewith illustrated. The screw driver embraces two sizes in one tool, the handle being constructed in an ingenious manner, so as not to split or become loose. By turning the handle at right angles with the blade the screw driver can be used in close and difficult places. The blade is

made to fit the slot in a screw and does not slip out in use. It is made of cast tool steel specially tempered for driving screws. Two sizes are furnished in one screw driver to make it possible to drive almost any screw.

#### Schofield's Happy Home Washer.

An illustration is herewith given of the Happy Home washing machine, which has been placed on the market by Schofield & Co., Freeport, Ill. This is a rocker washer, in which the washing is done by the action of the water



Schofield's Happy Home Washer.

on the clothes, without rubbing or otherwise manipulating the clothes mechanically. The washer is claimed to make a longer stroke than usual with machines of this type, and therefore imparts a stronger action to the water. The clothes are thrown against perpendicular bars in each end of the washer, the water being forced through the clothes at each stroke. The work is thus accomplished more thoroughly and in less time than when the clothes



are acted upon by the mere agitation of the water. The manufacturers claim that the action of this washer is much less injurious to clothes than when they are rubbed or otherwise handled mechanically. It is pointed out that as there is no machinery about the washer it is very durable.

### The Safety Trace Holder.

The accompanying illustration shows the Safety trace holder, manufactured by the Wabash Anti Rattler Company, Wabash, Ind. The device is used in pairs, and is secured by a couple of small screws on the singletree, near its extremity, to hold the trace securely or to permit



*The Safety Trace Holder.*

its disengagement rapidly when required. It consists of a small oblong base with a pair of vertical ears near the outer end, between which is pivoted a hook arm to secure the trace. The hook arm is arched over the trace, and is held by a spring so that the hook bears down with a snap movement, or can be erected to stand by the spring pressure. The dotted line shows the hook in position to release the trace. This is referred to as a much neater arrangement than the usual leather tongue thrust through an aperture in the end of a singletree. It can be worked in the dark, and will not soil the hands in using.

### An Improvement in Halter Chains.

The Oneida Community, Limited, Niagara Falls, N. Y., are now putting the Oneida lock ring, as shown herewith, on all their American halter chains. The company remark that formerly all halters were fitted with stationary rings, but these had the disadvantage of always seeming to be in the wrong place; the ring never just where it was wanted, or the noose either too large or too



*An Improvement in Halter Chains.*

small. To remedy this the slip ring was introduced. It was a great improvement, but under some conditions it did not work as well as could be wished. The Oneida lock ring is designed to meet the objections to both the stationary and slip rings. Until the toggle is in place it is practically a slip ring. It moves freely along the chain and can be placed in any desired position. As soon, however, as the toggle is put in the ring is locked securely and cannot be moved until the toggle is taken out. The lock ring is patented in the United States and Canada.

### Herrick's Wire Hoops.

F. A. Herrick Company, Jackson, Mich., are putting on the market Herrick's O. K. wire hoops, as here illustrated. They are intended for tubs, pails and barrels, and are made of galvanized wire with a galvanized clip. The manufacturers say they will not rust and will outlast two or three common iron hoops. A hammer is the only tool



*Herrick's O. K. Wire Hoops.*

needed to put them on. They are sent out with one end of the wire in the clip, as seen in the illustration, and put up in neat boxes from which to retail them. Pail hoops are 40 inches long and 35 in each box. Tub hoops are 80 inches long and 25 in a box. Barrel hoops are 144 inches long and 15 in a box.

### Cast Aluminum Hollow Ware.

The Patton Mfg. Company, Columbus, Ohio, are making various kinds of cast aluminum ware, three styles of



*Fig. 1. - Round Boiler.*

which are shown in the accompanying engravings. Fig. 1 is a round boiler, furnished in 12 sizes, as follows: 2, 3, 4 and 5 pints; 3, 4, 5, 6, 7, 8, 10 and 12 quarts. Fig. 2 repre-



*Fig. 2. - Straight Saucepan, Wood Handle.*

sents a straight saucepan with wood handle, without cover, in 2, 3 and 4 quart sizes. Fig. 3 shows one of several patterns of self righting cuspidors. The aluminum



*Fig. 3. - Self Righting Cuspidor.*

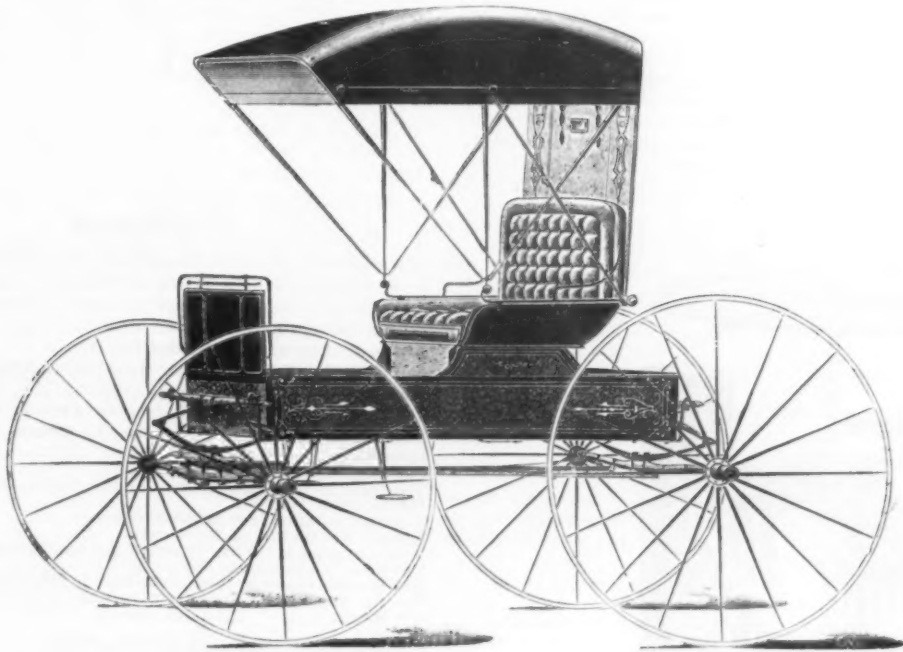
hollow ware of this company is finished in three styles; full solid finish inside and out; solid finish inside and satin finish outside, and polished inside and satin finish outside

**The Ideal Buggy.**

The accompanying cut illustrates a buggy recently put on the market by the Union Carriage Company, St. Louis, Mo. The buggy is described as having marble-

**Nut Crack, Pick Holder and Tray.**

The Freeport Novelty Company, Freeport, Ill., are manufacturing the Rapid nut crack and Good Luck horseshoe nut pick holder, as here shown. The nut crack in

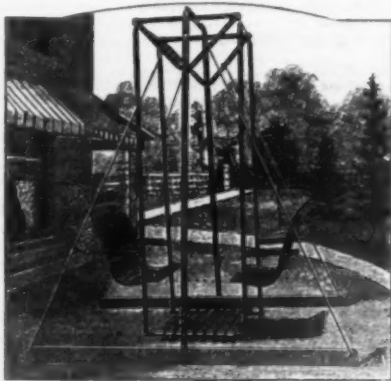


*The Ideal Buggy.*

ized panels and riser handsomely ornamented, with long distance axles, full bolted wheels, full length steel body loops, toe rails, steps and rub irons, full length velvet carpet with toe and side carpets, silver dash rail, high panel spring back and spring cushion trimmed in No. 1 machine buffed leather or heavy all wool cloth or whipcord. The back stays are stitched with silk with a cord on each side. The quarters are referred to as being dust proof and handsomely corded with 22-ounce rubber roof and back curtain and leather quarters, or full leather top. It is claimed that the self-lubricating axles with which the running gear is equipped will run over 1000 miles without requiring reoiling. The buggy is made with bodies of the following sizes: 23 x 54, 20 x 54 and 18 x 54 inches. The company also manufacture an extensive line of pleasure vehicles for the trade.

**The Kingman Steel Swing.**

Kingman & Co., Peoria, Ill., with branch houses at St. Louis, Kansas City, Omaha and Des Moines, have placed on the market the steel swing shown herewith.

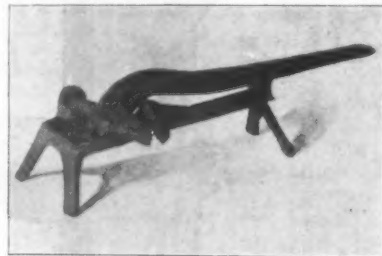


*The Kingman Steel Swing.*

It is made in two sizes, suitable for two or four persons. It is referred to as having all of the advantages of the concern's wooden swing and as being an improved up to date article of steel construction; also, as being neat and strong. Awnings are furnished for either style at an advance in price.

Lloyd McMillan has succeeded McMillan & Ingham in the Hardware and Furniture business at Morrill, Kan.

dimensions is 12 x 5 x 4 inches, and is made both of solid aluminum, weight 12 ounces, and cast iron, aluminum finish, 2 pounds. There are no rivets, screws or springs, the top lever being instantly removable. It will readily



*Fig. 1. - Rapid Nut Crack.*

crack small, intermediate and large sized nuts, and is handsome in appearance. In this connection they offer the pick holder shown in Fig. 2, which is 3 inches long



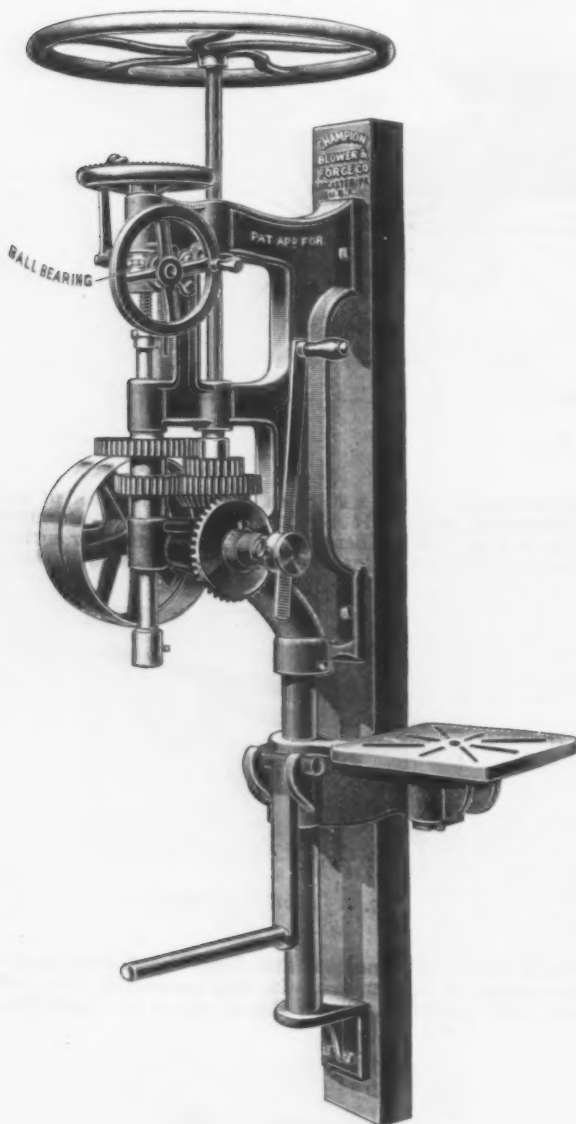
*Fig. 2. - Good Luck Horseshoe Nut Pick Holder.*

with six plated horseshoe nails as nut picks. They also make the Rapid nut tray of aluminum, 11 1/2 x 5 1/4 x 1 1/2 inches, in an ornamental design resembling somewhat sterling silver and plated ware.



**Champion Improved Drill No. 7.**

The accompanying cut represents the Champion No. 7 new improved cut geared automatic self feed post drill offered by the Champion Blower & Forge Company, Lancaster, Pa. The drill contains, it is remarked, all the valuable mechanical features of the company's old style No. 7 drill, with the addition of three new and independent improvements. The drill may be used either for power exclusively or hand and power combined, and is for use in machine shops, carriage factories and blacksmith shops. It is pointed out that the improved quick return or hand feed wheel is an important feature for getting the bit out of the work quickly or to use as a hand feed for drilling holes up to  $\frac{1}{2}$  inch. The hand feed wheel is



Champion Improved Drill No. 7.

referred to as of great value for feeding, especially when the drill is run by power, giving all the speed and advantage obtained in larger shop drills. The ball bearing, it is stated, will reduce friction when drilling from 20 to 50 per cent., the larger the hole the more power saved. The wheel holder is intended to hold and turn wheels on, for drilling tire and preventing the scuffing of painted wheels. Among the points of excellence mentioned is the power obtained by the arrangements of double gears for quick and slow speed, for light and heavy work, which can be changed instantly; the variety of light and heavy work done by the drill; the quickness and convenience of its mechanical movements; its lightness in running, and the automatic self feed or independent hand feed, making it a useful tool wherever drilling metal is done. Specifications are as follows: Drills to center of a 19-inch circle; spindle takes in 41-64-inch straight shank. If especially ordered the spindle will be bored for  $\frac{1}{4}$ -inch shank. Pulleys are 10 x 2 $\frac{1}{2}$  inches. Speed for ordinary work is 180 revolutions per minute. Drills from 0 to

$\frac{1}{4}$ -inch. The machine is 65 inches long and weighs 325 pounds.

Lowell Hardware Company, Janesville, Wis., have rented the Norcross block adjoining their present store. This comprises two floors, 80 x 120 feet, with one hand and one power elevator. Their present store is 40 x 100 feet, two stories, with elevator, so that the addition is an important enlargement of their facilities. They have removed their tinshop to the second floor of the new building and a Bicycle department has succeeded the tinshop.

Taylor & Poole have succeeded Paul B. Taylor in the Hardware, Stove, Implement and Sporting Goods business at Lampasas, Texas.

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# Current Hardware Prices.

REVISED MAY 31, 1899.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, either by the manufacturers or by the jobbers.

**Cut Prices.**—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron Hardware and Machinery trades.

**Standard Lists.**—A new edition of "Standard Hardware Lists" is in preparation and will contain the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters Blind—

Domestic, 7 doz. \$3.00... 33½¢@33½¢105  
North's... 105  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent... 40¢  
Taplin's Perfection... 5½¢

**Ammunition**—See Caps, Cartridges, Shells, &c.

## Anvils—American—

Eagle Anvil... 7½¢@7½¢  
Ray-Budden, Wrought... 8½¢@8½¢  
Horseshoe brand, Wrought... 9½¢@9½¢  
Samson... 7½¢@7½¢  
Fenton, Wrought... 8½¢@8½¢

## Imported—

Armitage's Mouse Hole... 8½¢@9½¢  
Peter Wright's... 9½¢@9½¢

## Anvil, Vise and Drill—

Millers Falls Co., \$15.00... 90¢

## Apple Parers—See Parers,

Apple, &c.

## Augers and Bits—

Common Double Spur... 75¢@10¢80¢  
Boring Machine Augers... 75¢@10¢80¢  
Car Bits, 12-in. twist... 60¢@10¢10¢70¢105

Jennings' Pattern:

Auger Bits... 70¢@5¢70¢105  
Car Bits... 60¢@60¢105  
Ford's Auger and Car Bits... 40¢@10¢40¢105

Forster Pat. Auger Bits... 35¢

C. E. Jennings & Co.,

No. 10 ext. lip. R. Jennings' list... 40¢@40¢105

No. 30. R. Jennings' list... 50¢@10¢80¢

Russell Jennings'... 35¢@10¢40¢

L'Honniedieu Car Bits 15¢@10¢15¢105

Pugh's Black... 20¢

Pugh's Jennings' Pattern... 35¢

Snell's Auger Bits... 70¢

Snell's Bell Hangers' Bits... 50¢

Snell's Car Bits... 60¢@10¢50¢70¢

Wright's Jennings Bits (R. Jennings' list) 50¢

**Bit Stock Drills—**

Standard List... 60¢@10¢10¢70¢

## Expansive Bits—

Clark's small, 1½; large, 2... 50¢@10¢70¢

Lavigne's Clark's Pattern, No. 1, 7½

doz., No. 2, 11... 50¢@50¢105

Steer's No. 1, 3½; No. 2, 11... 40¢@40¢55

Swan's... 40¢@40¢105

## Gimlet Bits—

Common Double Cut, gro. \$3.75 to \$3.25

German Pattern... gro. \$5.00

Double Cut, makers' lists... 50¢@50¢105

## Hollow Augers—

Bonney's Adjustable, 7 doz... \$18.00

Douglass... 33½¢@33½¢105

Stearns', Common, No. 6... 105

Stearns', all other numbers... 30¢@105

## Ship Augers and Bits—

Ford's... 40¢@10¢40¢105

Snell's... 40¢@105

L'Honniedieu's... 15¢@10¢15¢105

Watrous'... 40¢@40¢105

## Awl Hafts, See Hafts, Awl.

## Awls—

Brad Awls:

Handled... gro. \$2.75 to \$3.10

Unhandl'd, Shouldered gro. 65¢@70¢

Unhandl'd, Patent... gro. 70¢@75¢

Peg Awls:

Unhandl'd, Patent... gro. 33¢@35¢

Unhandl'd, Shouldered gro. 55¢@70¢

Scratch Awls:

Handled, Common, gro. \$3.25 to \$3.75

Handled, Socket, gro. \$11.00 to \$12.00

**Awl and Tool Sets—See**

Sets, Awl and Tool.

## Axes—

First Quality, best brands... \$5.00 to \$5.25

First Quality, other brands... \$1.25 to \$4.75

Jobbers' Special Brands, good quality... \$1.00 to \$4.75

Cheap Handled Axes... \$4.75 to \$5.25

Beveled, add 25¢ doz.

**Axle Grease—See Grease, Axle.**

## Axles—

Concord, loose collar... 5½¢ 5 c  
Concord, solid collar... 5½¢ 5 c

No. 1 Common... 4 c 3½¢

No. 14 Common, New Style... 4½¢ 4 c

No. 2, Solid Collar... 4½¢ 4 c

Nos. 7, 8, 11 to 14... 60¢@55

Nos. 15 to 18... 60¢

Nos. 19 to 22... 70¢

## Balances—

Caldwell low list... 80¢

Pullman's... 65¢

Vanderbilt... 80¢

## Spring—

Spring Balances... 50¢@50¢55

Chatillon's Light Spz. Balances... 50¢

Chatillon Straight Balances... 40¢@105

Chatillon Circular Balances... 50¢@105

Chatillon's Large D'al... 35¢

**Barb Wire—See Wire, Barb.**

## Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb... 3½¢@3½¢

## Beams, Scale—

Scale Beams, List Jan. 12, '93... 40¢@105

Chatillon's No. 1... 80¢

Chatillon's No. 2... 40¢

## Beaters—Egg—

Dover Pattern, Family Size... gro. \$5.50 to \$3.75

Spiral... gro. \$5.00 to \$3.25

Dover (Standard Co.), No. 10, 7 gro.

\$1.25; No. 5, \$3.75; No. 15, \$14.00

Dover (Taplin Mfg. Co.) No. 50, 7 gro.

\$5.25; No. 100 \$6.25; No. 103 \$8.00;

No. 150, 7 doz. \$1.50; No. 159 \$9.00.

Lyon's Standard... 7 doz. \$1.75

Wonder (S. S. & Co.)... 7 doz. 75¢

## Bellows—

Blacksmith—

Standard List... 70¢@70¢105

Inch... 30 32 34 36 38 40

Each... \$4.00 4.25 5.00 5.50 6.25 7.50

Extra Length:

Each... \$4.75 5.25 5.75 6.50 7.40 8.75

## Molders—

Inch... 9 10 11 12 14 15

Doz... \$5.25 6.75 8.00 9.00 11.50 13.75

## Hand—

Inch... 6 7 8 9 10 12

Doz... \$3.40 3.75 4.00 4.75 5.50 6.40

## Bells—Cow—

Ordinary goods... 75¢@105

High grade... 70¢@70¢105

Jersey... 75¢@75¢105

Texas Star... 50¢@105

## Door—

Gong, Yankee... 60¢@105

No. e. R. & E. Mfg. Co.'s... 50¢@105

Lever and Pull, Sargent's... 45¢@105

## Hand—

Hand Bell, Polished... 65¢@105

White Metal... 65¢@105

Nickel Plated... 50¢@50¢105

Swiss... 65¢@65¢105

## Miscellaneous—

Farm Bell... lb. 2c

Steel Alloy Church and School... 60¢@105

## Belting Rubber—

Common Standard... 75¢@75¢105

Standard... 70¢@70¢105

Extra... 60¢@105

High Grade... 60¢@60¢105

## Leather—

Extra Heavy, Short Lap... 60¢@105

Regular Short Lap... 60¢@60¢105

Standard... 60¢@105

Light Standard... 70¢@105

**Bench Stops—See Stops, Bench**

**Benders and Upsetters,**

**Tire—**

Brettell Tire Upsetter, \$15... 50¢

Green River Tire Benders and Upsetters... 20¢

Stoddard's Lightning Tire Upsetters... 40¢@50¢

## Bicycle Goods—

Lane's Cycle Hanger... 33½¢@25

John S. Leng's Son's 1899 1st:

Balls... 50¢

Chain... 50¢

Paris... 50¢

Spokes... 50¢@105

## Bits—

Auger, Gimlet, Bit Stock Drills, &c.—

See Augers and Bits.

**Bit Holders—See Holders.**

**Blind Adjusters—See Ad-**

**justers, Blind.**

**Blind Fasteners—See Fast-**

**eners, Blind.**

**Blind Staples—See Staples,**

**Blind.**

**Blocks—Tackle—**

Common Wooden... 75¢@105

Eddy's All Steel, Common Bushed... 70¢

Eddy's All Steel, Bronze Bushed... 60¢@55

Harts All Steel, Common Bushed... 50¢@105

Harts All Steel, Bronze Bushed... 50¢@105

Ford's Star Brand, Self Lubricating... 70¢

Hollow Steel, Ford's Pat. Star Brand... 50¢@105

Lane's Pat. Adj., Perfect Safety and

Junior... 30¢

Stowell's Novelty, Mal. Iron... 50¢@105

See also Machines, Hoisting.

**Boards, Stove—**

1899 List... 33½¢@40¢

**Boils—**

Carriage, Machine, &c.—

Common, list Jan. 30, '95... 70¢@70¢105

Norway Iron, \$3.00, list Oct. 7, '84... 75¢@105

Phila. Eagle, \$3.00, list... 80¢@50¢155

Bolt Ends, list Jan. 30, '95... 70¢@70¢105

Machine list June 12, '96... 70¢@105

Note.—See Trade Report.

**Door and Shutter—**

Cast Iron Barrel, Round Brass

Knob:

Inch... 3 4 5 6 8

Per doz... \$0.37 .30 .33 .43 .66

Cast Iron Bottom, Japanned:

Inch... 6 8 10

Per doz... \$0.53 1.05 1.65

Cast Iron Chain, Flat, Japanned:

Inch... 6 8 10

Per doz... \$1.10 1.35 1.57

Cast Iron Shutter, Brass Knob:

Inch... 6 8 10

Per doz... \$0.49 .77 .83

Wrought Barrel Brass Knob:

Inch... 3 4 5 6 8

Per doz... \$0.44 .50 .61 .70 1.23

Ives' Patent Door... 65¢@65¢105

Wrought Flush... 50¢@105

R. K. Sargent's list... 60¢@105

R. K. Stanley's list... 60¢@105

Sunk, Sargent's or Stanley's list... 50¢@105

Wrought Shutter... 60¢@105

Wrought Square... 75¢@75¢105

**Stove and Plow—**

Plow, list August 27, 1898... 70¢@105

Stove, list August 27, 1898... 67½¢@70¢

Note.—See Trade Report.

**Tire—**

Common, list Feb. 23, '83... 67½¢@70¢105

Note.—See Trade Report.

American Screw Company:

Norway Phila., list Oct. 16, '84... 75¢

Eagle Phila., list Oct. 16, '84... 80¢

Bay State, list Feb. 23, '83... 67½¢

Franklin Moore Co.:





**Cimlets—**

Nail, Metal, Assorted, gro. \$2.00@2.50  
Spike, Metal, Assorted, gro. \$3.75@4.00  
Nail, Wood Handled, Assorted, gro. \$4.30  
Spike, Wood Handled, Assorted, gro. \$4.30

**Glass, American Window**

List Jan. 1, 1898.

Small lots from store:  
Eastern.....80¢@90¢  
Western.....80¢@85¢  
From Factory, with Frit. Allowance:  
Carloads.....80¢@85¢  
1000 boxes or more, Gulf Ports.....85¢@10¢  
3000 boxes or more.....85¢@85¢  
5000 boxes or more.....85¢@85¢

**Glue—Liquid, Fish—**

List A, Bottles or Cans, with Brush.....37¢@50¢  
List B, Cans (½ pts., pts., qts.).....35¢@45¢  
List C, Cans (½ gal., gal.).....25¢@45¢

**Glue Pots—See Pots, Glue.****Grease, Axle—**

Allerton's Axle:  
1 lb. Tins, ½ gr.....\$9.00  
5 lb. Tin Pails, ½ doz., \$3.00; 5 lb., \$3.00;  
10 lb., \$6.00.  
25 lb. wood pails.....½ doz. \$12.00  
Dixon's Everlasting, in 10 lb. pails, ea. 5¢  
Dixon's Everlasting, in 5 lb. pails, ea. 1¢  
Lower grades, special brands.....½ gr. \$5.00@6.50

**Grindstone Fixtures—**

See Fixtures, Grindstone.

**Gun Powder—See Powder.****Hack Saws—See Saws.****Hafts, Awl—**

Peg Patent, Leather Top.....gro. \$4.30  
Peg Patent, Plain Top.....gro. \$3.45  
Sewing, Brass Ferrule.....gro. \$1.50  
Saddlers', Brass Ferrule.....gro. \$1.35  
Peg, Common.....gro. \$1.25  
Brad, Common.....gro. \$1.35

**Halters and Ties—**

Covert Mfg. Co., Web and Rope.....45¢@75¢  
Covert's Saddlery Works, 96 lbs.....70¢

**Hammers—**

**Handled Hammers—**  
Heller's Machinists'.....40¢@40¢  
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50,  
\$1.75.....40¢@10¢  
Peck, Stow & Wilcox.....40¢@40¢  
Fayette R. Plumb:  
Artisans' Choice, A. E. Nail.....40¢@19¢  
Engineers' and B. S. Hand.....60¢  
Machinists' Hammers.....60¢  
A. E. & A. E., Bell Face Nail.....40¢@19¢  
Other Nail Hammers.....50¢  
Sargent's C. S. New List.....45¢@50¢

**Heavy Hammers and****Sledges—**

3 lb. and under.....lb. 45¢ } 75¢@10¢  
5 to 10 lb.....lb. 35¢ } 80¢@5¢  
Over 10 lb.....lb. 30¢ }  
Wilkinson's Smiths'.....94¢@10¢ lb.

**Handcuffs and Leg Irons**

See Police Goods.

**Handles—**

**Agricultural Tool Handles—**  
Hoe, Rake, Fork, etc. 60¢@10¢@60¢@10¢  
Shovel, etc., Wood D Handle.....60¢@10¢

**Cross-Cut Saw Handles—**

Atkins'.....40¢  
Champion.....45¢@45¢  
Dixie's.....50¢  
Ely's Perfection.....½ doz. \$3.00

**Mechanics' Tool Handles—**

Auger, assorted.....gro. \$2.25@2.50  
Auger, large.....gro. \$2.75@3.00  
Broad Axl.....gro. \$1.40@1.50

**Chisel Handles—**

Apple Firmer, gro. ass'd. \$2.25@  
\$2.50; large, \$2.75@3.00.  
Hickory Firmer, gro. ass'd. \$2.25  
@2.50; large, \$2.50@2.75.  
Socket, gro. ass'd. Firmer, \$1.50@  
\$1.60; Framing, \$2.50@2.75.

File, assorted.....gro. \$1.00@1.25  
Hammer, Hatchet, Axe, etc., 50¢@10¢  
Hoe, Rake and Fork.....60¢@10¢  
Shovel and Spade, Wood D Handle.....60¢@10¢

**Hand Saw, Varnished, doz. 75¢@90¢**

Not Varnished.....55¢@90¢

**Plane Handles—**

Jack, doz. 23¢@35¢; Jack Bolted.....55¢@90¢  
Fore, doz. 35¢@55¢; Fore, Bolted.....70¢@75¢

**Hangers—**

Barn Door, New Pattern, Round  
Groove, Regular:  
Inch.....3 4 5 6 8  
Dox.....\$1.25 1.50 1.75 2.00 2.50

Barn Door, New England Pattern,  
Check Back, Round Groove, Reg-  
ular:  
Inch.....3 4 5 6 8  
Dox.....\$2.35 3.75 4.50 5.25

**Bigelow & Dowse Co.: Paragon, No. 1, \$3.50; No. 2, \$4.50;**

No. 3, \$5.50 ½ doz.

**Chicago Spring Butt Co.: Friction.....35¢@35¢@10¢**

Oscillation.....35¢@35¢@10¢

Big Twin.....35¢@35¢@10¢

Chisholm &amp; Moore Mfg. Co.: Advance.....60¢@10¢

Cleveland.....60¢@10¢

Baggage Car Door.....60¢@10¢

Elevator.....60¢@10¢

Railroad.....60¢@10¢

Lane Bros.: Parlor, Standard.....40¢@10¢

Barn Door, Standard.....60¢@10¢

Covered.....60¢@10¢

Cycle, ½ doz. \$12.00.....33¢@25¢

No. 50.....60¢@5¢

Parlor Door, New Model.....40¢@5¢

Lawrence Bros.: Crown.....60¢@10¢

New York.....60¢@10¢@60¢@10¢

Stirling.....60¢@10¢

McKinney Mfg. Co.: No. 1, Standard, \$18.....60¢@10¢

No. 2, Special, \$13.....60¢@10¢

E. C. Stearns &amp; Co.: Davis Parlor Door.....50¢@50¢@5¢

Gem Parlor Sliding Door.....50¢@10¢

Challenge.....50¢@50¢@5¢

Steel Single Track Parlor, \$8.....50¢

Royal Parlor Door.....50¢

Warner's Pat.....30¢@10¢@10¢

Warner's Imp'd Single.....40¢@10¢

Stowell Mfg. and Foundry Co.: Badger.....60¢@10¢

Baggage Car Door.....33¢@25¢

Climax Anti-Friction.....55¢@5¢

Elevator.....40¢

Interstate.....60¢@15¢

Magic.....60¢@10¢

Matchless.....60¢@10¢

Parlor Door.....50¢@10¢

Railroad.....55¢@5¢

Street Car Door.....50¢@10¢

Steel, Nos. 800, 400, 500.....45¢@15¢

Wild West.....55¢@5¢

Zenith for Wood Track.....55¢@5¢

Taylor &amp; Boggs Foundry Co.: Kidder's.....50¢@50¢@10¢

Van Wagoner &amp; Williams Hdw Co.: American Trackless.....33¢@10¢

Wilcox Mfg. Co.: Aurora Steel Endless.....60¢

Bike Roller Bearing.....60¢@10¢@10¢

Bike Steel Endless.....60¢@10¢@10¢

C. J. Roller Bearing.....60¢@10¢@10¢

Cycle Ball Bearing.....60¢@10¢@10¢

Dye Steel.....60¢@10¢

Economical Single Track.....50¢@10¢@5¢

E. T. Roller Bearing.....70¢

New Era.....50¢@10¢

New Richards.....60¢

O. K. Roller Bearing.....70¢

Prindle Improved.....60¢@10¢

Richards' Improved.....60¢@10¢

Richards' Single Track.....50¢@10¢

Wilcox Dwarf Roller Bearing.....40¢@10¢

Wilcox Ives.....60¢@10¢

Wilcox Tandem Roller Bearing.....60¢@10¢

Wilcox Trolley Ball Bearing.....40¢@10¢

Wilcox Trolley Roller Bearing.....50¢

Wilcox Trolley Roller Bearing.....40¢@10¢

Wood Track.....80¢

**Harness Menders—See Menders.****Harness Snaps—See Snaps.****Hasps—**

McKinney's Perfect Hasp, ½ doz. \$1.10

40¢@10¢

**Wrought Hasps, Staples, etc.—See Wrought Goods.****Hatchets—**

Best Brands.....40¢@12¢@50¢@5¢

Cheaper Brands.....60¢@10¢@60¢

**Hay and Straw Knives—See Knives.****Hinges—****Blind Hinges—**

Lull &amp; Porter: 1 1½ 2 2½

No. 1.....1 1½ 2 2½

Dox, pair.....\$0.47 .45 .40 .35

1863 Old Pattern: 1 1½ 2 2½

No. 1.....1 1½ 2 2½

Dox, pair.....\$0.55 1.00 2.00

Parker.....75¢@10¢@75¢@10¢@5¢

North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50

Reading's Gravity.....75¢@10¢

Sargent's, Nos. 1, 3, 5, 11, 13, 75¢@75¢@10¢

Wrightville H'dware Co.: Acme, Lull &amp; Porter.....80¢@10¢

Buffalo Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢@5¢

Champion Gravity Locking, No. 75.....80¢@10¢

1863, Old Pat'n, Nos. 1, 3 &amp; 5.....80¢@10¢

Tip Pattern, Nos. 1, 3 and 5.....80¢@10¢@5¢

Double Locking, Nos. 20 and 25.....75¢

Empire, Nos. 101 and 103.....80¢

Niagara Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢

Noiseless, Nos. 50, 60, 65 and 65.....80¢

O. S. Lull &amp; Porter.....80¢@10¢@5¢

Pioneer, Nos. 060, 45 and 54.....75¢@5¢

Steamboat Gravity Locking, No. 10.....80¢@10¢@5¢

Stanley's Steel Gravity Blind Hinges, ½ doz. sets \$1.30.....40¢@10¢

**Gate Hinges—**

Clark's or Shepard's—Dox, sets: 1 2 3

No. 1.....1 2 3

Hinges with Latches.....\$1.10 1.75 3.25

Hinges only.....0.93 1.40 3.40

Latches only.....0.45 .46 .80

**New England:**

With Latch.....doz. \$1.45@1.80

Without Latch.....doz. \$1.30@1.55

**Reversible Self-Closing:**

With Latch.....doz. \$1.70@1.75

Without Latch.....doz. \$1.30@1.55

**Western:**

With Latch.....doz. \$1.75@1.80

Without Latch.....doz. \$0.75@0.75

**Spring Hinges—**

Holdback, Cast Iron, gro. \$15.00.....50¢@50¢@5¢

Non-Holdback, Cast Iron, gro. \$5.50@5.75

J. Bardeley: Bardeley's Patent Checking.....15¢

Bommer Bros.: Bommer's.....40¢

Chicago Spring Butt Co.: Chicago.....30¢

Garden City Engine House.....30¢

Keene's Saloon Door.....30¢

Lawson Mfg. Co.: Matchless.....25¢

Matchless Pivot.....40¢

Payson Mfg. Co.: Oblique, Dbl. Acting.....50¢@50¢@5¢

E. C. Stearns &amp; Co.: Nos. 45 and 51.....70¢

Stover Mfg. Co.: Ideal, No. 10, Detachable, ½ gr.....\$1.25

Ideal, No. 4.....½ gr. \$9.00

New Idea No. 1.....½ gr. \$9.00

New Idea, Double Acting.....45¢

Van Wagoner &amp; Williams Hdw Co.: Acme.....30¢@5¢

American.....30¢

Columbia, No. 14.....½ gr. \$8.00

Columbia, No. 15.....½ gr. \$24.00

Crown.....30¢

Gem.....30¢

Knox.....½ gr. \$9.00

Oxford.....30¢

**Wrought Iron Hinges—**

Strap and T Hinges, etc., list Mar. 15, 1898:

Light Strap Hinges.....70¢@10¢

Heavy Strap Hinges.....75¢@5¢

Light T Hinges.....65¢

Heavy T Hinges.....70¢

Extra Heavy T Hinges.....70¢@10¢

Rolled Plate.....70¢@10¢

Screw Hook: 6 to 12 in., lb. 3 @34¢

14 to 20 in., lb. 2½ @35¢

and Strap: 22 to 36 in., lb. 2½ @34¢

**Hoes—****Eye—**

Scovill and Oval Pattern.....60¢@60¢@10¢

Grub, list Feb. 23, 1899.....70¢@10¢@75¢

D. &amp; H. Scovill.....35¢@35¢@5¢

**Handled—**

1895 or Old List:

Cotton, Field, Planters', etc.....60¢@10¢@10¢@5¢

1898 or High List:

Field and Garden.....60¢@10¢@5¢@2¢

Ladies', Boys', Toy and Onion.....75¢@12¢@2¢

Street and Mortar.....75¢@15¢@2¢

Cotton.....75¢@10¢@2¢@2¢

Planters'.....75¢@16¢@2¢

Weeding.....75¢@10¢@5¢@2¢

Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.

Ft. Madison Crucible Garden Hoe.....75¢@10¢@2¢

Ft. Madison Crescent Cultivator Hoe, per doz.....\$3.75

Ft. Madison Mattock Hoe, ½ doz.....\$4.00

Ft. Madison Sprouting Hoe, ½ doz.....\$4.50

Ft. Madison Dixie Tobacco Hoe.....75¢@10¢@2¢

Kreisinger's Cut Easy, per doz.....\$4.50

Warren Hoe.....75¢@10¢@2¢

**Hog Rings and Ringers—**

See Rings and Ringers.

**Hoisting Apparatus—**

See Machines, Hoisting.

**Hollow Ware—**

See Ware, Hollow.

**Holders—Bag—**

Sensible Bag and Twine.....50¢

**Bit—**

Angular, ½ doz. \$24.00.....45¢@10¢

**File and Tool—**

Nicholson File Holders and File Handles.....\$39¢

**Hooks—****Cast Iron—**

Bird Cage, Reading.....66¢@70¢

Bird Cage, Sargent's List.....50¢@50¢@5¢

Clothes Line, Sargent's List.....50¢@50¢@5¢

Clothes Line, Stowell's.....70¢@5¢

Clothes Line, Reading List.....85¢@10¢@5¢@10¢@10¢

Coat and Hat, Stowell's.....70¢@5¢

Coat and Hat, Reading.....70¢@75¢

Coat and Hat, Sargent's List.....50¢@10¢

Coat and Hat, Wrightville List.....70¢@10¢

Harness, Reading List.....70¢@10¢@75¢

**Wire—**

Bell.....80¢@10¢@80¢@20¢

Atlas, Coat and Hat.....50¢@50¢@10¢

Wire Coat and Hat:

Acme.....60¢@60¢@5¢

B. B.....70¢@70¢@5¢

Gem.....60¢@5¢

Bright Wire Goods—See Wire.

**Wrought Iron—**

Box, or Case, Octagon Steel.....doz. \$9.00@1.15

Cotton.....doz. \$1.00@1.10



**Lemon Squeezers—**

See Squeezers, Lemon.

**Lifters, Transom—**

Dickson:  
 8 x 11 ft. 100 \$10.00  
 Other sizes, Iron 70x10x10 \$11.00  
 Other sizes, Brass 70x10x10 \$11.00  
 Excessor 60x60x10 \$11.00  
 Payson's:  
 Solid Grip Nos. 303 and 304, \$10.00  
 Other sizes 70x10x10 \$11.00

**Lines—**

Wire Clothes, Nos. 18 19 20  
 100 feet \$3.50 \$2.50 \$2.00  
 75 feet 1.50  
 Ossawann Mills:  
 Crown Solid Braided Chalk 33x5  
 Mason's, No. 9 to No. 5 33x5  
 Silver Lake Braided Chalk, No. 9, 96.00;  
 No. 1, 96.50; No. 2, 97.00; No. 3, 97.50;  
 No. 4, 98.00; No. 5, 98.50; No. 6, 99.00;  
 No. 7, 99.50; No. 8, 100.00; No. 9, 100.50;  
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**Shovels and Tongs—**

Brass Head ..... 60¢ 10¢ 60¢ 10¢ 10¢  
 Iron Head ..... 60¢ 10¢ 60¢ 10¢ 10¢

**Sieves and Sifters—**

Hunter's Imitation ..... gro. \$9.00 @ 9.50  
 Buffalo Metallic, S. S. & Co., gr.:  
   16 18 18 18 18 20  
   Blued ..... \$10.80 \$11.40 \$11.40 \$12.00  
   Tinned ..... 11.40 12.00 12.00 12.60  
 Eclipse ..... gr. \$9.00 @ 9.50  
 Hunter's Genuine ..... gr. \$10.00 @ 10.50  
 Shaker (Barler's Pat.) Flour Sifters .....  
   doz., \$2.00 ..... 25¢

**Sieves, Wooden Rim—**

Mesh 18, Nested, doz. .... \$0 80  
 Mesh 20, Nested, doz. .... 90  
 Mesh 24, Nested, doz. .... 1.00

**Sinks—****Cast Iron—**

High list ..... 75¢ 5¢ 75¢ 10¢  
 Low list ..... 60¢ 10¢ 10¢ 70¢

**Wrought Steel—**

Columbus Galv'd and Enamelled, 50¢ 10¢  
 Columbia, Painted ..... 80¢ 10¢  
 L. & G. .... 50¢ 10¢

**Slates—**

"D" Slates ..... 50¢ 10¢ 50¢ 10¢ 10¢  
 Unexcelled Noiseless Slates .....  
   60¢ 5¢ 60¢ 10¢ 10¢ 5¢  
 Wire Bound ..... 40¢ 10¢ 50¢  
 Double Slates, add \$1 case, net.

**Slaw Cutters—See Cutters.****Snaps, Harness—**

German ..... 50¢ 50¢ 5¢  
 Covert Mfg. Co.:  
   Deroy ..... 45¢ 25¢  
   High Grade ..... 45¢ 25¢  
   Jockey ..... 45¢ 25¢  
   Trojan ..... 45¢ 25¢  
 Covert's Saddlery Works:  
   Banner ..... 75¢  
   Crown ..... 70¢  
   Triumph ..... 70¢  
 W. & E. T. Fitch:  
   Bristol ..... 40¢ 10¢  
   Empire ..... 50¢ 5¢  
   National ..... 50¢ 5¢  
   Clipper ..... 50¢ 10¢ 5¢  
   Champion ..... 40¢ 10¢  
   Victor ..... 60¢ 5¢  
 Sargent's Patent Guarded .....  
   70¢ 10¢ 70¢ 10¢ 10¢

**Snaths—**

Scythe ..... 55¢

**Snips, Tinnners'—See Shears.****Soldering Irons—**

See Irons, Soldering.

**Spoke Trimmers—**

See Trimmers, Spoke.

**Spoons and Forks—****Tinned Iron—**

Basting, Cen. Stamp Co.'s list .....  
   75¢ 10¢ 80¢  
 Solid Table and Tea, Cen. Stamp  
 Co.'s list ..... 70¢ 25¢

**Silver Plated—**

Flat Ware ..... 50¢ 10¢ 60¢ 10¢  
 Wm. Rogers Mfg. Co. .... 50¢ 10¢

**Miscellaneous—**

German Silver ..... 60¢ 10¢  
 Wm. Rogers Mfg. Co.:  
   18% German Silver ..... 60¢  
   Rogers' Silver Metal ..... 50¢ 10¢

**Springs—****Door—**

Gem (Coil) ..... 20¢  
 Rubber, complete ..... gr. \$15.00  
 Star (Coil) .....  
   Torrey's Rod, 39 in., doz. \$1.10 @ 1.25  
   Warner's No. 1, doz. \$1.50 @ 1.75  
   \$3.40 ..... 55¢ 55¢ 10¢  
 Victor (Coil) ..... 60¢ 10¢ 60¢ 10¢ 5¢

**Carriage, Wagon, &c.**

Elliptic, Concord, Platform and Half  
 Scroll, 60¢ 10¢ 60¢ 10¢ 5¢ or follow-  
 ing net prices:

Tempered, Oil Temper'd.  
   Blk. Brt. Blk. Brt.  
   1 1/4 in. .... 54¢ 6¢ 54¢ 6¢  
   1 1/2 in. .... 54¢ 6¢ 54¢ 6¢  
   1 3/4 in. .... 54¢ 6¢ 54¢ 6¢  
 Cliff's Bolster Springs ..... 40¢ 25¢  
 Cliff's Seat Springs ..... pair 45¢

**Sprinklers, Lawn—**

Enterprise ..... 25¢ 30¢  
 Philadelphia No. 1, doz. \$12; No. 2,  
 \$15; No. 3, \$24.

**Squares—**

Nickel plated ..... List May 1, '95.  
 Steel and Iron ..... 75¢ 10¢ 75¢ 10¢ 5¢  
 Rosewood Edl. Try Square and T-  
 Bevels ..... 60¢ 10¢ 10¢ 70¢  
 Iron Edl. Try Squares and T-Bevels.  
   40¢ 10¢ 40¢ 10¢ 10¢  
 Dlaton's Try Sq. and T-Bevels ..... 60¢ 10¢  
 Winterbottom's Try and Miter ..... 50¢ 10¢

**Squeezers—****Lemon—**

Wood, Common, gro. No. 0. \$5.00;  
 No. 1, \$6.50; No. 2, \$10.00.  
 Wood, Porcelain Lined:  
   Cheap ..... doz. \$2.50 @ 2.75  
   Good Grade ..... doz. \$3.00 @ 3.50  
   Tinned Iron ..... doz. \$0.90 @ 1.25  
   Iron, Porcelain Lined doz. \$3.25 @ 3.50  
 Jennings' Star ..... doz. \$1.85 @ 1.90  
 Kling ..... doz. \$2.00

**Staples—**

Barbed Blind ..... lb. 3¢ 3 1/4¢  
 Electricians', Association list, 80¢ 10¢  
 Fence Staples, same price as Barbed  
 Wire. See Trade Report.  
 Poultry Netting ..... lb. 4¢ 1 1/4¢  
 Grand Crossing Tack Co.'s list ..... 75¢ 10¢

**Steels, Butchers'—**

Dick's ..... 40¢  
 Foster Bros. .... 40¢  
 C. & A. Hoffmann's ..... 40¢  
 Nichols Bros. .... 50¢  
 John Wilson's, list Sept. 1, '94 ..... 25¢

**Steelyards ..... 40¢ 40¢ 10¢****Stocks and Dies—**

Blacksmiths' ..... 35¢ 40¢  
 Gardner ..... 40¢ 10¢  
 Green River ..... 25¢  
 Lightning Screw Plate ..... 25¢  
 Little Giant ..... 25¢  
 Beece's New Screw Plates ..... 25¢ 30¢  
 Reversible Ratchet ..... 25¢

**Stone—****Scythe Stones—**

Pike Mfg. Co., list '95-'96 ..... 33 1/4¢  
 Cleveland Stone Co., list Nov. '92, 33 1/4¢

**Oil Stones, &c.**

Pike Mfg. Co.:  
   Hindustan No. 1, 3 1/2" 8"  
   Sand Stone ..... 33 1/4¢  
   Turkey Oil Stone, Extra ..... 33 1/4¢ 10¢  
   5 to 9 in. .... 80¢  
   Turkey Slips ..... \$2.00  
   Lily White Washita ..... 60¢  
   Rose Red Washita ..... 60¢  
   Washita Stone, Extra ..... 50¢  
   Washita Stone, No. 1 ..... 40¢  
   Washita Stone, No. 2 ..... 30¢  
   Lily White Slips ..... 90¢  
   Rose Red Slips ..... 90¢  
   Washita Slips, Extra ..... 80¢  
   Washita Slips, No. 1 ..... 70¢  
   Arkansas Stone, No. 1, 5 1/2" 10 1/2" \$3.50  
   Arkansas Stone, No. 1, 5 1/2" 10 1/2" \$3.50  
 Tanite Mills:  
   Emery Oil, doz. \$5.00 ..... 50¢ 60¢

**Stoners—****Cherry—**

Enterprise ..... 25¢ 30¢

**Stops, Bench—**

Millers Falls ..... 15¢ 10¢  
 Morrill's ..... doz. No. 1, \$10.00; No. 2,  
   \$11.00, 40¢ 20¢  
 Stearns' ..... 30¢ 25¢

**Stops, Window—**

Taplin's ..... 45¢

**Stove Boards—**

See Boards, Stove.

**Stove Polish—See Polish, Stove.****Straps, Box—**

Cary's Universal ..... 20¢ 10¢ 10¢

**Stretchers, Carpet—**

Cast Iron, Steel Points ..... doz. 70¢ 75¢  
 Cast Steel, Polished ..... doz. \$2.25  
 Socket ..... doz. \$1.75

**Stuffers, Sausage—**

Miles' Challenge, doz. \$30 ..... 50¢ 50¢ 5¢  
 Enterprise Mfg. Co., list Jan. 17, '93 .....  
   25¢ 25¢ 7 1/2¢  
 National Specialty Mfg. Co., list Jan.  
 1, '97 ..... 25¢

**Tacks, Brads, &c.—**

List Jan. 15, '99.  
 Carpet Tacks:  
   American Blued ..... 20¢ 30¢ 20¢ 35¢  
   American Tinned ..... 20¢ 30¢ 20¢ 35¢  
   American Cut Tacks ..... 20¢ 20¢ 20¢ 25¢  
   Swedes Iron Tacks ..... 20¢ 25¢ 20¢ 30¢  
   Upholsterers' Tacks, 20¢ 10¢ 10¢ 20¢ 50¢  
   Gimp Tacks ..... 20¢ 10¢ 10¢ 20¢ 50¢  
   Lace Tacks ..... 85¢ 20¢ 20¢  
   Trimmers' Tacks ..... 20¢ 20¢ 20¢ 30¢  
   Looking Glass Tacks ..... 75¢  
   Bill Posters' and Railroad Tacks .....  
   90¢ 25¢ 20¢ 35¢  
 Hungarian Nails ..... 80¢ 10¢ 80¢ 15¢  
 Common and Patent Brads, 75¢ 75¢ 5¢  
 Trunk and Clout Nails:  
   Blued ..... 80¢ 10¢  
   Tinned ..... 80¢ 10¢

**Miscellaneous—**

Double Point Tacks ..... 20¢ 5¢  
 Steel Wire Brads, R. & E. Mfg.  
 Co.'s list ..... 50¢ 10¢ 60¢  
 See also Nails, Wire.

**Tanks, Oil—**

Emerald, S. S. & Co. .... 30-gal. \$3.00  
 Emerald, S. S. & Co. .... 60-gal. \$3.75

Queen City S. S. & Co., 80-gal., each, \$4.00;  
 100-gal., \$6.25; 120-gal., \$8.50; 200-  
 gal., \$14.00; 250-gal., \$17.75

**Tapes, Measuring—**

American Asses' Skin ..... 40¢ 10¢ 50¢  
 Patent Leather ..... 25¢ 25¢ 10¢  
 Steel ..... 35¢ 10¢  
 Chesterman's ..... 25¢ 25¢ 5¢  
 Keuffel & Esser Co., Steel and Metallic,  
 new list, 1898 ..... 35¢  
 Lufkin's Steel and Metallic .....  
   33 1/4¢ 33 1/4¢ 25¢

**Thermometers—**

Tin Case ..... 80¢ 10¢

**Ties, Bale—Steel.**

Standard Wire ..... 50¢ 10¢ 5¢

**Ties, Wall—**

Cleveland, Steel ..... \$ 1000, \$10.00

**Tinners' Shears, &c.—**

See Shears, Tinnners', &c.

**Tinware—**

Stamped, Japanned and Piced, sold  
 very generally at net prices.

**Tire Benders, Upsetters,**

&c.—See Benders and Upset-  
 ters, Tire.

**Tobacco Cutters—**

See Cutters, Tobacco.

**Tools—****Coopers'—**

L. & I. J. White ..... 20¢ 20¢ 5¢

**Saw—**

Atkins' new list ..... 40¢  
 Simonds' ..... 33 1/4¢

**Transom Lifters—**

See Lifters, Transom.

**Traps—Game—**

Newhouse ..... 50¢ 5¢ 50¢ 10¢  
 Oneida Pattern ..... 80¢ 80¢ 5¢

**Mouse and Rat—**

Mouse, Wood, Choker, doz. holes, 8¢ 2¢  
 Mouse, Round or Square Wire .....  
   doz. \$0.85 @ 1.00  
 Dandy ..... doz. \$1.75  
 Marty French Rat and Mouse Traps  
 (Genuine):  
   No. 1, Rat ..... doz. \$15.00  
   No. 3, Rat ..... doz. \$5.85  
   No. 3 1/2, Rat ..... doz. \$4.50  
   No. 4, Mouse ..... doz. \$4.30  
   No. 5, Mouse ..... doz. \$3.00  
 Schuyler's Rat Killer, No. 1, gr. \$13.50;  
   No. 2, gr. \$15.00  
 Out of Sight, Mouse, No. 1, doz. 60¢;  
   Rat, No. 2, \$1.25; Mo, \$6.00;  
   Gopher, \$1.50; Stop Thief, No. 1,  
   \$1.25; No. 2, \$1.50.

**Fly—**

Balloon, Globe or Acme .....  
   doz. \$1.25; gro. \$14.50 @ 15.00  
 Harper, Champion or Paragon  
   doz. \$1.50; gro. \$17.00

**Trimmers, Spoke—**

Bonney's No. 1, doz. \$2.75; No. 2,  
   \$3.75  
 Douglas', doz. \$9.00 ..... 20¢ 10¢  
 Stearns' ..... 20¢ 10¢

**Trowels—**

Dlaton Brick and Pointing ..... 30¢  
 Dlaton Plastering ..... 25¢  
 Dlaton "Standard Brand" and Ga-  
 den Trowels ..... 40¢  
 Peace's Plastering ..... 25¢ 25¢ 45¢  
 Rose Brick and Plastering ..... 30¢ 30¢ 10¢  
 Woodrugh & McFarlin, Plastering, 25¢ 10¢

**Trucks, Warehouse, &c.—**

B. & L. Block Co.'s list ..... 40¢  
 Daisy Stove Trucks, improved pattern  
   doz. \$18.00

**Tubs, Wash—**

No. 1 2 3  
 Galvanized, doz. \$5.25 6 00 6 75  
 Galvanized S. S. & Co., with Wringer  
 Attachment, doz. No. 10, \$6.35;  
 No. 20, \$6.75; No. 30 ..... \$7 50

**Twine—**

White Sisal, 500 feet to lb. .... 9 1/4¢  
 Standard, 500 feet to lb. .... 9 1/4¢  
 Manila, 500 feet to lb. .... 10 1/4¢  
 Pure Manila, 500 feet to lb. .... 10 1/4¢

**Miscellaneous—**

Flat Twine—  
   No. 9 1/4 and 1/2-lb. Balls ..... 50¢ 24¢  
   No. 12 1/4 and 1/2-lb. Balls ..... 70¢ 30¢  
   No. 18 1/4 and 1/2-lb. Balls ..... 11¢ 17¢  
   No. 24 1/4 and 1/2-lb. Balls ..... 11¢ 17¢  
   No. 36 1/4 and 1/2-lb. Balls ..... 13¢ 16¢  
 Chalk Line, Cotton, 1/2-lb. Balls .....  
   18¢ 20¢  
 Cotton Mops, 6, 9, 12 and 15 lb. to  
 doz ..... 8¢ 9¢  
 Cotton Wrapping, 5 Balls to lb .....  
   9¢ 16¢  
 American 3-Ply Hemp, 1/4 and 1/2-lb.  
 Balls ..... 9¢ 10¢  
 American 3-Ply Hemp, 1-lb. Balls .....  
   9¢ 10¢  
 American 3-Ply Hemp, 1-lb. Balls  
 (Spring Twine) ..... 10¢ 11¢

**India 3-Ply Hemp, 1/4 and 1/2-lb.**

Balls (Spring Twine) ..... 9¢

**India 3-Ply Hemp, 1-lb. Balls ..... 9¢****India 3-Ply Hemp, 1 1/2-lb. Balls ..... 9¢****3, 4 and 5-Ply Jute, 1/2-lb. Balls, 6¢****Mason Line, Linen, 1/2-lb. Balls, 11¢****No. 24 Mattress, 1/4 and 1/2-lb. Balls, 5¢****Wool ..... 5¢ 5¢ 5¢****Vises—****Solid Box ..... 60¢ 60¢ 10¢****Bonney's Saw Vises ..... 40¢ 10¢****Parallel—**

Bonney's ..... 40¢ 10¢  
 Fisher & Norris Double Screw ..... 15¢ 10¢  
 Hollands' ..... 40¢ 40¢ 10¢  
 Massey's Perfect ..... 20¢ 25¢  
 Massey's Clincher ..... 40¢ 40¢ 10¢  
 Merrill's ..... 25¢  
 Miller's Falls ..... 45¢ 10¢  
 Parker's ..... 50¢ 10¢  
 Parker's Oval Slide ..... 30¢  
 Parker's Victor ..... 20¢ 25¢  
 Prentiss ..... 70¢ 10¢ 70¢ 10¢ 10¢  
 Sargent's ..... 40¢  
 Simpson's Adjustable ..... 25¢  
 Stephens' ..... 25¢  
 Toles' Woodworking ..... 40¢ 5¢ 40¢ 10¢  
 Trenton ..... 40¢ 5¢ 40¢ 10¢

**Saw Filers—**

Bonney's No. 2 & 3, \$15.00 ..... 40¢ 10¢  
 Dlaton's D 3 Clamp and Guide, \$ d. 2  
 \$30 ..... 25¢  
 Reading ..... 40¢ 10¢  
 Stearns' Common, Nos. 0, 1, 2 & 3 ..... 50¢  
 Stearns' Rubber Jaw, Nos. 10 & 33, 33¢ 4¢  
 Wentworth's Rubber Jaw, Nos. 1, 2  
 and 3 ..... 40¢

**Miscellaneous—**

Signal & Keeler Combination Pipe  
 Vise ..... 60¢ 5¢

**Parker's Combination Pipe:**

87 Series ..... 60¢  
 187 Series ..... 60¢ 5¢  
 No. 870 ..... 40¢

**Wads—Price Per M.**

R. E., 11 up ..... 60¢  
 R. E., 9 and 10 ..... 70¢  
 R. E., 8 ..... 80¢  
 R. E., 7 ..... 80¢  
 P. E., 11 up ..... \$1.00  
 P. E., 9 and 10 ..... 1.25  
 P. E., 8 ..... 1.50  
 P. E., 7 ..... 1.50  
 Ely's B. E., 11 and larger ..... \$1.70 @ 1.75  
 Ely's P. E., 15 to 50 ..... \$3.00 @ 3.25

**Wagon Boxes—**

See Boxes, Wagon.

**Wagon Jacks—**

See Jacks, Wagon.

**Ware, Hollow—**

Aluminum—  
 S. S. & Co. Reduced List ..... 40¢

**Cast Iron, Hollow—**

Stove Hollow Ware:  
   Ground ..... 60¢ 10¢ 65¢  
   Unground ..... 60¢ 10¢ 10¢ 70¢  
 White Enamelled Ware:  
   Mason Kettles ..... 75¢ 10¢ 5¢ 80¢  
   Boilers and Saucepans ..... 60¢ 60¢ 5¢  
 Tinned Boilers and Saucepans, 60¢ 5¢  
 See also Pots, Glue.  
 Note.—See Trade Report.

**Enamelled—**

Agate and Granite Ware, list Jan. 1,  
 '94, revised Jan. 3, '95 ..... 40¢ 10¢  
 Second Quality ..... 70¢ 10¢ 70¢ 10¢ 10¢  
 Ironclad Enamelled Ware, Old list ..... 70¢  
 Never Break Enamelled ..... 50¢ 10¢

**Tea Kettles—**

Galvanized Tea Kettles:  
   Inch ..... 6 7 8 9  
   Each ..... 40¢ 45¢ 50¢ 60¢

**Steel Hollow Ware.**

Avery Spiders & Griddles ..... 70¢ 70¢ 5¢  
 Avery Kettles ..... 60¢ 60¢ 10¢  
 Never Break Spiders and Griddles .....  
   70¢ 70¢ 5¢  
 Solid Steel Spiders & Griddles, 70¢ 70¢ 5¢  
 Solid Steel Kettles ..... 60¢ 60¢ 10¢  
 Solid Steel Ware, Enamelled ..... 50¢ 10¢

**Silver Plated Hollow—**

William Rogers Mfg. Co. .... 40¢ 10¢ 5¢

**Washers—****Leather, Axle—**

Solid..... 80¢ 10¢ 10¢ 85¢  
 Patent..... 85¢ 85¢ 85¢  
 Coil: 1/8 1 1 1/4 1 1/2 1 3/4 1 7/8 per 100

**Iron or Steel—**

Size bolt.... 5-16 3/8 1/2 5/8 3/4  
 Washers..... \$5.30 4.50 3.10 2.90 2.70  
 In lots less than one keg add 1/4¢ per lb., 5-lb. boxes add 1/4¢ to list.

**Washer Cutters—**

See Cutters, Washer.

**Washing Machines—**

See Machines, Washing.

**Water Coolers—**

See Coolers, Water.

**Weaners—**

Tyler's New Hater—No. 1 1/2 doz. \$3.45;  
 No. 2, \$3.70; No. 3, \$4.00; No. 4, \$4.30  
 Tyler's Hater—Nos. 1 and 2, 1/2 doz. \$1.70;  
 No. 3, \$2.00; No. 4, \$2.30.

**Weather Strips—See Strips,**

Weather.

**Wedges—**

Oil Finish..... lb. 2.70 @ 2.55¢

Aze Finish..... lb. 3.00 @ 3.10¢

**Weights, Sash**

Eastern: Carloads at factory... \$17.00  
 Less than carloads at factory... \$18.00  
 Western: Carloads at factory... \$17.50 @ 18.00  
 Less than carloads at factory... \$18.50 @ 19.00

Note.—Some Foundries are naming higher prices.

**Well Buckets, Galvanized**

See Pulls, Galvanized.

**Wheels, Well—**

8-in., \$1.75; 10-in., \$2.00; 12-in., \$2.50; 14-in., \$3.75.

**Wire and Wire Goods—**

Market: Nos. 0 to 18:

Br. & Ann..... 75¢ 7/8 @ 75¢ 10¢  
 Cop'd..... 72 1/2 @ 72 1/2 @ 5¢  
 Galv..... 72 1/2 @ 72 1/2 @ 5¢  
 Tin'd, Tin'd list..... 75¢ 7/8 @ 75¢ 10¢

Stone, Br. and Ann'd: Quotations nominal.

Nos. 16 to 18.....

Nos. 19 to 26.....

Nos. 27 to 36.....

Annealed Wire on Spools..... 60¢ 10¢ @ 60¢ 10¢ 5¢

Brass, list Feb. 26, '98..... 15¢

Copper, list Feb. 26, '98..... 30¢

Cast Steel Wire..... 50¢

Steel Music Wire, 12 to 30, imported..... lb. 60¢ 70¢

Stub's Steel Wire..... \$6.00 to \$2, 40¢

Wire Clothes Line, see Lines.

Wire Picture Cord, see Cord.

**Bright Wire Goods—**

Iron and Brass, list April 1, 1899..... 50¢ 50¢ 10¢ 5¢

Note.—The old high list is still used by many merchants, dis 90¢ 90¢ 5¢

**Wire Cloth and Netting—**

Galvanized Wire Netting..... 80¢ 80¢ 10¢

Painted Screen Cloth per 100 ft..... \$1.25 @ 2.00

See Trade Report

**Wire Barb—See Trade Report.****Wire, Rope—See Rope, Wire.****Wrenches—**

Agricultural..... 75¢ 10¢ @ 80¢

Baxter's S..... 70¢

Coe's Genuine..... 40¢ 10¢ 5¢ 5¢ 3¢

Coe's "Mechanics"..... 40¢ 10¢ 10¢ 5¢ 5¢ 3¢

Acme..... 80¢ 80¢ 5¢ 5¢

Aiken's Pocket (Bright)..... \$2.00 @ 3.20

Alligator..... 70¢ 70¢ 10¢

**Bemis & Call's:**

Adjustable S..... 35¢ 5¢

Adjustable Pipe..... 40¢

Brigg's Pattern..... 30¢ 10¢

Combination Black..... 40¢ 10¢

Combination Bright..... 40¢ 5¢

Cylinder or Gas Pipe..... 55¢

Extra Heavy..... 45¢

Merrick's Pattern..... 50¢

No. 3 Pipe, Bright..... 50¢

Boardman's..... 35¢ 1/4

Bull Dog, W. &amp; B..... 70¢ 10¢ 10¢

Donohue's Engineer..... 40¢ 10¢

Eagle..... 50¢ 10¢

Hercules..... 70¢ 10¢ 75¢

Stevenson..... 60¢ 10¢ 10¢

**Wrought Goods—**

Staples, Hooks, &amp;c., list March 17, '98..... 35¢ 10¢ @ 90¢

**Yokes, Neck—**

Covert Saddlery Works, Trimmed..... 70¢

Covert Saddlery Works, Neck Yoke Centers..... 70¢

**Yokes, Ox, and Ox Bows—**

Fort Madison's Farmers &amp; Freighters..... 20¢

**Zinc—**

Sheet..... lb 8 1/4¢ @ 8 1/4¢

**PAINTS, OILS AND COLORS.—Wholesale Prices.****White Lead, Zinc, &c.**

Lead, Foreign white, in Oil..... 8 @ 8 1/4

Lead, American White, in Oil..... 5 1/2 @ 5 1/4

Lots of 500 lb or over..... 5 1/4 @ 5 1/2

Lead, White, in oil, 25 lb tin..... 3 1/4

pails, add to keg price..... 1

Lead, White, in oil, 12 1/2 lb tin..... 3 1/4

pails, add to keg price..... 1

Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price..... 1 1/4

Lead White, Dry in bbls..... 5

Lead, American, Terms: On lots of 500 lbs. and over, 60 days, or 9% for cash if paid in 15 days from date of invoice.

Zinc, American, dry..... 4 1/4 @ 4 1/2

Zinc, French, S. &amp; B. Red Seal..... 7 1/4

Zinc, French, S. &amp; B. Green Seal..... 7 1/4

Zinc, Paris, Red Seal..... 8 1/4

Zinc, Paris, Green Seal..... 9 1/4

Zinc, Antwerp, Red Seal..... 7 1/4

Zinc, Antwerp, Green Seal..... 8 1/4

Zinc, V. M. in Poppy Oil, G. Seal..... 10 1/4

lots of 1 ton and over..... 10 1/4

Zinc, V. M. in Poppy Oil, Red Seal..... 9 1/4

lots of 1 ton and over..... 9 1/4

Discount—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 15; 25 bbl. 25; 50 bbl. 45. No discount allowed on less than 10 bbl. lots.

**Dry Colors.**

Black, Carbon..... 7 1/2 @ 5 @ 40

Black, Drop, Amer..... 3 1/4 @ 5

Black, Drop, Eng..... 5 @ 10

Black, Ivory..... 10 @ 20

Blue, Celestial..... 5 @ 8

Blue, Chinese..... 90 @ 35

Blue, Prussian..... 38 @ 32

Blue, Ultramarine..... 6 @ 30

Brown, Spanish..... 14 @ 24

Brown, Vandyke, Amer..... 3 1/4 @ 5

Brown, Vandyke, Foreign..... 3 1/4 @ 5

Carmine, No. 40, in bulk..... \$9.20 @ 2.35

Carmine, No. 40, in 1/2 bottles..... 2.35 @ 3

Carmine, No. 40, in ounce bot. 3.50 @ 3.60

Green, Chrome, ordinary..... 3 @ 10

Green, Chrome, pure..... 18 @ 24

Lead, Red, bbls. and 1/2 bbls..... 5 1/2 @ 5 1/4

Lead, Red, kegs..... 6 @ 6

Litharge, bbls. and 1/2 bbls..... 5 1/2 @ 5 1/4

Litharge, kegs..... 6 @ 6

Ocher, French Washed..... 1 @ 1 1/4

Ocher, German Washed..... 4 1/4 @ 5

Ocher, American..... \$ ton \$8.00 @ 17.00

Orange Mineral, French..... 10 1/2 @ 10 1/2

Orange Mineral, German..... 8 1/2 @ 8 1/2

Orange Mineral, American..... 8 1/2 @ 8 1/2

Red, Indian, English..... 4 1/2 @ 8 1/2

Red, Indian, American..... 3 1/2 @ 8

Red, Turkey..... 7 @ 8

Red, Tuscan..... 7 @ 8

Red, Venetian, Amer..... \$ 100 lb. 60 @ 70

Red, Venetian, English..... \$1.05 @ 3.00

Sienna, Italian, Burnt and..... 4 @ 7

Powdered..... 3 1/4 @ 9 1/4

Sienna, Ital., Raw, Powd..... 3 1/4 @ 9 1/4

Sienna, American, Raw..... 1 1/4 @ 1 1/4

Sienna, American, Burnt and..... 1 1/4 @ 1 1/4

Powdered..... 1 1/4 @ 1 1/4

Talc, French..... \$ 100 lb. 90 @ 1.50

Talc, American..... 40 @ 65

Terra Alba, French, \$ 100 lb..... \$1.00

Terra Alba, English..... 75 @ 90

Terra Alba, American No. 1..... 5 @ 75

Terra Alba, American No. 2..... 45 @ 50

Umber, Turkey, Bnt. &amp; Powd..... 2 1/4 @ 3

Umber, Bnt. Amer..... 1 1/4 @ 1 1/4

Umber, Raw, Amer..... 1 1/4 @ 1 1/4

Yellow, Chrome..... 10 @ 35

Vermilion, American Lead..... 10 @ 35

Vermilion, Quicksilver, bbls. or kegs..... 61 @ 61

Vermilion, Quicksilver, bags..... 61 @ 61

Vermilion, Quicksilver, sm. r'pks..... 61 @ 61

Vermilion, English, Import..... 61 @ 61

Vermilion, Artificial..... 5 @ 30

Vermilion Chinese..... 70 @ 75

**Colors in Oil.**

Black, Lampblack, Best..... 10 @ 13

Black, Lampblack, Common..... 7 @ 9

Blue, Chinese..... 35 @ 40

Blue, Prussian..... 25 @ 35

Blue, Ultramarine..... 16 @ 20

Brown, Vandyke..... 7 @ 12

Green, Chrome..... 7 @ 11

Green, Paris..... 17 @ 22

Sienna, Raw..... 7 @ 10

Sienna, Burnt..... 7 @ 10

Umber, Raw..... 6 @ 10

Umber, Burnt..... 7 @ 10

**Miscellaneous.**

Barytes, Foreign, \$ ton..... \$18.00 @ 20.00

Barytes, Amer. floated..... 18.00 @ 20.00

Barytes, Crude..... 8.00 @ 10.00

Chalk, in bulk..... \$ ton 2.90 @

Chalk, in bbls..... \$ 100 lb 3.50 @

China Clay, English..... \$ ton 10.00 @ 17.50

Cobalt, Oxide..... \$ 100 lb 1.70 @

Whiting, Common..... \$ 100 lb 30 @ 40

Whiting, Gliders..... 40 @ 45

Whiting, extra Gliders..... 55 @

Paris Green:

Arsenic, kegs or casks..... 13 @ 13

Kegs, 100 lb @ 175 lb..... 12 1/2 @ 13 1/4

Kits, 14, 28, 56 lb..... 13 1/4 @ 14 1/4

Paper Boxes, 2 @ 5 lb..... 13 1/4 @ 14 1/4

Paper Boxes, 1 lb..... 14 @ 15

Paper Boxes, 1/2 lb..... 15 @ 16

Paper Boxes, 1/4 lb..... 16 @ 17

**Putty.**

In barrels and 1/2 bbls..... 1 1/4-10 @ 1 1/4

in tubs..... 1 1/4 @ 1 1/4

in tin cans..... 1 1/4 @ 1 1/4

in bladders..... 1 1/4 @ 1 1/4

**Spirits Turpentine.**

In Southern bbls..... 41 1/4 @

In machine bbls..... 42 @

**Glue.**

Low Grade..... 7 @ 9

Cabinet..... 11 @ 15

Medium White..... 10 @ 15

Extra White..... 15 @ 25

French..... 10 @ 25

Irish..... 10 @ 12 1/4

**Animal Fish and Vegetable Oils.**

Linseed, City, raw..... \$ gal. 43 @ 44

Linseed, City, boiled..... 45 @ 46

Linseed, Western, raw..... 51 @

Linseed raw Calcutta seed..... 51 @

Lard, Prime City, present make..... 43 @ 45

Lard, Extra No. 1..... 35 @ 37

Lard, No. 1..... 30 @ 32

Cotton-seed, Crude..... 22 @ 22 1/2

Cotton-seed, Summer Yellow, prime..... 26 1/2 @ 27

Cotton-seed Summer Yellow, off grades..... 25 @ 26

Sperm, Crude..... 50 @ 52

Sperm, Natural Spring..... 53 @ 55

Sperm, Bleached Spring..... 58 @ 60

Sperm, Natural Winter..... 57 @ 59

Sperm, Bleached Winter..... 63 @ 65

Whale, Crude..... 46 @

Whale, Natural Winter..... 46 @

Whale, Bleached Winter..... 49 @

Whale, Extra Bleached Win..... 52 @

Menhaden, Crude, Sound..... 34 @ 35

Menhaden, Light Pressed..... 29 @ 30

Menhaden, Bleached Winter..... 31 @

Menhaden, Extra Bleached..... 34 @

Tallow, Western, prime..... 42 @ 43

Coconut, Ceylon..... 5 1/4 @ 6

Coconut, Ceylon..... 5 1/4 @ 6

Cod, Domestic..... 34 @ 36

Cod, Newfoundland..... 34 @ 36

Red Elaine..... 28 @ 30

Red Saponified..... 3 1/4 @ 4 1/4

Bank..... gal. @ 27

Straits..... 58 @

Olive, Italian, bbls..... 58 @ 60

Neatfoot, prime..... 48 @ 45

Palm, prime, Lagos..... 5 1/4 @ 5 1/4

**Mineral Oils.**

Black, 29 gravity, 25 @ 30 cold test..... gal. @ 7 1/4

Black, 29 gravity, 15 cold test..... 8 @

Black, summer..... 7 @

Cylinder, light filtered..... 13 @ 13 1/4

Cylinder, dark filtered..... 11 @ 11 1/4

Paraffine, 23 @ 24 gravity..... 8 1/4 @ 9

Paraffine, 25 gravity..... 8 @ 8 1/4

Paraffine, 28 gravity..... 7 1/4 @ 7 1/2

Paraffine, red, No. 1..... 8 @ 8 1/4

In small lots 1/4¢ advance.

# THE IRON AGE.

The oldest paper in the world devoted to the interests of the Hardware, Iron and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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